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Volume XX — September 1930 — Number 9

Pan American Sanitary Bureau

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American Journal of Public Health
and THE NATION'S HEALTH Vol. XII No. 9

Volume XX September, 1930 Number 9

The Pan American Sanitary Bureau

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THE growing importance of the relations of the peoples of each American Republic with those of every other makes it incumbent upon all Americans, North, Central and South, to become fully informed of these relations and to be informed particularly with regard to questions of an international character. The object of this paper is to sketch briefly the origin and development of the work of the Pan American Sanitary Bureau and the closely related Pan American Sanitary Conferences.

The Pan American Sanitary Bureau is a permanent international health organization in which all of the American republics are represented and to the support and maintenance of which they all contribute funds in proportion to their populations. The bureau is concerned in maintaining and improving the health of all of the people of these 21 American republics and also in preventing the occurrence and spread of transmissible diseases in international commerce, particularly the international commerce of the republics concerned. It is composed of members chosen from different American republics, who meet periodically, and of a force of employees who, under the supervision of the Director of the Bureau, are daily occupied in carrying on its work. Its home is in the building of the Pan American Union in Washington, D. C., and it is the executive organ of the Pan American Sanitary Conferences.

The Pan American Sanitary Conferences are composed of delegates from all of the American republics, who meet once in 2 to 4 years; elect the officers and members of the Directing Council of the Sanitary Bureau; and spend from 1 to 2 weeks in discussing and resolving international sanitary problems, particularly of the Western Hemisphere, and local sanitary problems of general interest. Since

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their inception in 1902 there have been 8 Pan American Sanitary Conferences held in various American Republics.

For many years prior to the creation of the Pan American Sanitary Conferences and the Sanitary Bureau, statesmen, meeting in international conferences, treating of questions of a general nature, blindly attempted the solution of the vexing questions of international quarantines and the spread of such diseases as plague, cholera and yellow fever in international commerce, without, however, being able to improve general health conditions or obviate the drastic quarantines which would invariably follow the appearance of one of these diseases in some important commercial port. Gradually there dawned on the members of these general conferences the fact that the protection of the public health, involving as it does the prevention of the spread of communicable diseases, is a matter which must be dealt with by men who are specially trained in such work.

This opinion was crystallized and expressed in Sections 5, 6 and 7 of the Resolutions of the Second (general) Pan American Conference of American Republics, which met in Mexico City in 1902. These resolutions provided for the holding of international (Pan American) sanitary conferences; for the establishment and perpetuation of an executive body dependent upon these conferences—the Pan American Sanitary Bureau—and for funds for its maintenance, each American republic contributing to its support, according to the number of its inhabitants.

The officers and members of the Pan American Sanitary Bureau (known as the Directing Council) are elected by the Pan American Sanitary Conferences. The members of this Council, as chosen by the last conference, which was held in Lima, Peru, in October, 1927, are as follows:

Honorary Director, Dr. Carlos Enrique Paz Soldan, Professor of Hygiene in the Faculty of Medicine, Lima, Peru; *Director,* Dr. Hugh S. Cumming, Surgeon General, U. S. Public Health Service, Washington, D. C.: *Vice-Director,* Dr. Mario G. Lebredo, Director of " Las Animas " Hospital and Chief of the Section of Epidemiology, National Department of Health and Welfare, Havana, Cuba; *Secretary,* Dr. Sebastián Lorente, Director of Health of the Republic of Peru, Lima, Peru; *Members:* Dr. Solón Núñez F., Secretary of State for Health and Social Welfare, Republic of Costa Rica, San José, Costa Rica; Dr. Ramón Báez Soler, Sub-Secretary of State for Health and Welfare, Santo Domingo, Dominican Republic; Dr. Justo F. González, Professor of Hygiene in the Faculty of Medicine, Montevideo, Uruguay; Dr. João Pedro de Albuquerque, Director of Quarantines, National Department of Health, Rio de Janeiro, Brazil.

It is not possible, in a brief article, to give a detailed history of the work of the various Pan American Sanitary Conferences or of the Pan

American Sanitary Bureau. It should be recalled, however, that the first conference was organized in Washington in November, 1902; that it effected permanent organization by electing the members of the Sanitary Bureau, the first permanent organization of its kind; and that it cast into discard all previous quarantine measures directed against yellow fever, voting to base future measures for the control of this disease on the fact, which had recently been demonstrated, that yellow fever is conveyed in nature only by the bite of an infected mosquito.

The Second Pan American Conference also met in Washington, in 1905. This body drafted and approved a sanitary treaty, or convention, which, in great measure, standardized international quarantine procedure in the Western Hemisphere, and which was not without effect on quarantine practices, in European and Asiatic countries. This treaty was known as the Washington Convention, and was the precursor of the present Pan American Sanitary Code, adopted at the Seventh Pan American Sanitary Conference in Havana, Cuba, in 1924.

The Third Sanitary Conference provided for the establishment of relations with the International Office of Public Hygiene, of Paris, and a system of coöperation between the two offices has been developed for the mutual interchange of information regarding sanitary conditions and the presence of quarantinable diseases in the principal ports and countries of the world. This information is exchanged by cable, and is, immediately upon receipt, released to the health authorities of all countries concerned.

The Fifth International Conference of American Republics, meeting in Chile in 1923, charged the Sanitary Bureau with the preparation of an International Sanitary Code. This was done and the code was approved by the Seventh Pan American Sanitary Conference at Havana, Cuba, in 1924.

The Sixth Sanitary Conference, held in Montevideo, Uruguay, in 1920, authorized the publication of the *Pan American Sanitary Bulletin*, a monthly journal of public health, printed in Spanish, Portuguese and French. This bulletin circulates among health officers and others connected with public health work throughout the American republics, but chiefly in Latin America.

In addition, the Seventh Conference made the Pan American Sanitary Bureau the central coördinating agency and the general collection and distribution center of sanitary information to and from the American republics. In order to carry out this work, the Sanitary Bureau was authorized to designate representatives to visit and confer with the sanitary authorities of the various signatory governments on public health matters. Previous and subsequent authorizations provide for

traveling representatives to engage in such special coöperative work as may be agreed upon at the various conferences, limited only by the available funds and the expressed wishes of the coöperating governments.

Under a resolution adopted by the Fifth International Congress of American States, the Pan American Sanitary Bureau is authorized to call together in Washington, from time to time, the Directors of Health of the various American republics. The first such meeting was held in Washington in September, 1926, under the auspices of the Pan American Sanitary Bureau. Its chief work was the preparation of a program for the Eighth Sanitary Conference which was held in Lima the following year. The Directors of Health will meet again in Washington in 1931.

In addition to the duties which have been mentioned, the Sanitary Bureau publishes the reports of the proceedings of the sanitary conferences, and acts as a consulting bureau or source of information for health departments of the various republics. The way in which the office functions as a consulting bureau can best be illustrated by concrete examples. The following instances show the very close coöperation maintained.

1. A given food product manufactured in one republic and extensively sold in another caused considerable uneasiness with regard to its value and safety, and the propriety of its further use was questioned. The Sanitary Bureau was asked for pertinent information with regard to its production and composition. This information was obtained and promptly forwarded to the Director of Health of the country where the article was being sold.

2. After many years of absolute freedom from smallpox, this disease was reimported into one of the American republics. Seven cases developed, which were promptly isolated, and an intensive campaign of vaccination and re-vaccination was immediately begun; the Director of Health was importuned to close schools, theatres and other public assembling places. He cabled the Sanitary Bureau for an expression of opinion with regard to the necessity for such drastic action. The opinion was expressed that the measures already employed, if thoroughly carried out, should be sufficient to control the disease, and that it was believed to be safe to await further developments. No further cases occurred from this outbreak.

3. At the request of a European government, the Office International d'Hygiene Publique cabled the Sanitary Bureau, asking if a reported increase of plague in a certain American Republic materially increased the danger from this disease to trans-Atlantic ports, and, further, the question was asked whether or not vessels sailing from the country infected could be considered safe upon arrival. The opinion was expressed by the Sanitary Bureau that the increase in plague did not materially increase the danger to trans-Atlantic ports. The Office International was further informed that, while outgoing measures were being enforced in the infected country, conditions were such that, if vessels arrived at trans-Atlantic ports with evidence of living rats on board, fumigation might reasonably be required of such

vessels. Three days later a vessel arrived at a European port from the country in question and, upon fumigation, 7 plague-infected rats were found.

The tour of duty of Dr. John D. Long and that of Dr. C. R. Eskey, Traveling Representative and Epidemiologist, respectively, of the Pan American Sanitary Bureau, are indicative of another type of coöperation in public health work. Dr. Long during the past two years has visited most of the capitals of the member republics. He confers with the National Directors of Health and with other high officials and aids them in solving sanitary problems of general interest, and advises with regard to needed legislation and public health organization and administration. During the past several months Dr. Long and Dr. Eskey have been actively coöperating with the authorities of the Republic of Ecuador in making epidemiological studies of, and in carrying on an intensive campaign against, bubonic plague. They will shortly transfer their activities to Peru where it is expected that similar work will be undertaken.

In conclusion, it may be said that, as a result of the work of the International Sanitary Conferences and the Pan American Sanitary Bureau, during the last 25 years, a better understanding has been brought about between the health authorities of the republics of America, thereby removing the necessity for the drastic quarantines which were so common in the early part of the present century, and at the same time affording greater protection of the public health. This spirit of coöperation has also fostered and directly aided in the extermination of quarantinable diseases in many ports and places where such diseases were formerly endemic.

Desert of the Lions—The Convent, Mexico City

How the Nurse Can Help the Health Officer to Get His Message Across*

From the Standpoint of the City

HENRY F. VAUGHAN, D. P. H., F. A. P. H. A.

Commissioner of Health, Detroit, Mich.

THE evolution of public health procedure since the establishment of the first officially organized municipal health department in the United States in the middle of the last century has been ably described by many authors. With the creation of the Metropolitan Board of Health of New York City under the guidance of Dr. Stephen Smith, Founder of our own Association, public health became administratively established as a recognized executive division of our city government.

In those pre-bacteriology days during which philosophic discussion played such a large part in determining the ill effects of epidemic conditions, it was but natural that the sanitarian placed great stress upon the influence of environment on man's health. Departments were organized to combat nuisances, to supervise systems of scavenging, to regulate packing houses and rendering plants and, in general, to supervise features of municipal sanitation. Some attention was paid to the improvement of water supplies and the disposal of sewage. These latter activities were, of course, successful in reducing the death rate from typhoid fever and other water-borne and filth diseases.

The features of the then existing health program were such as we would now group among those performed collectively by the city administration, which cannot be efficiently administered by the individual citizen. No heed was taken of the important rôle which we now know the individual plays in serving as a vector for the conveyance of infection. The researches of the bacteriologist revolutionized our conception of the mode of transmission of most epidemic diseases. Thus there was created a more logical system of quarantine and isolation based upon bacteriologic control. Such an administrative system made possible further progress in the control of disease but was not without its limitations as it was soon discovered that quarantine of

* Read at a joint meeting of the Child Hygiene and Public Health Nursing Sections of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 4, 1929.

clinical cases in itself would not suffice to prevent the spread of infection. The healthy carrier, the mild case and the missed and undiagnosed case, played too large a part in the dissemination of infection. An appreciation of the limitations of quarantine together with the discoveries of the immunologist in the art of stimulating artificial protection against disease has finally led the public health administrator to an appreciation of the fact that education is the keynote on which all administrative policies of the modern health department should be built.

It is in this third developmental period of public health administration that the nurse is playing so important a part. While it is true that the layman continues to picture his health department as largely engaged in the supervision of epidemic diseases and the abatement of nuisances and offenses to the eye and nose, the administrator himself appreciates that his principal task is not to solve the vexing and annoying problems of the unusual but devastating epidemic, but rather to create an enlightenment in the public mind so that the individual citizen may appreciate his responsibility in keeping himself well and thus serving as a unit of a healthy community.

Public health administration is becoming more and more a problem in salesmanship. The city or county which is doing the most to teach its people the causes and means of control of disease and which is inculcating into the daily habits of its children the practice of hygienic living, is enjoying more vigorous health and is gradually lengthening the life of its citizens, thereby reducing its own death rate. There are many ways of selling health to the public. Popular health instruction through the medium of the printed page has done much to modernize the layman's conception of disease prevention. The daily or weekly newspaper as well as the health department bulletin, the movie, the radio and the lecture course plays an important part in the health education program. It can, however, be said without fear of contradiction that the most important single factor in teaching positive health is the public health nurse.

The *Appraisal Form* published under the auspices of this Association is generally recognized as an instrument which aims to express in terms of group judgment the value of the health program being administered by any city or county. An examination of this *Appraisal Form* would indicate that there is no division devoted exclusively to public health nursing. On the other hand a careful analytical review of the individual items incorporated in this measuring stick would indicate that the public health nurse is associated with activities which represent nearly 50 per cent of the entire score. The teaching value of the

public health nurse has become so well recognized that, in order to have a good local public health program, between 40 and 50 per cent of the appropriation of the health department should be devoted to a division of nursing. It may therefore be concluded that we as health officers have agreed that the public health nurse constitutes our most important asset in health education.

Are we using the resources and ability of the public health nurse to greatest advantage? If the housewife is considering the purchase of a new washing machine, she may obtain some impression of the type of machine she should have from advertisements which appear in newspapers or from hand bills left at her home, but, after all, the thing which convinces her above all things is the demonstration and sales talk of the vendor at the store. Salesmanship through demonstration and expression is the most profitable means of establishing opinion. As health officers we have public health nurses as our representatives entering every home of the community. We may have a specialized nursing service in which the individual nurse has been taught to function in but a limited field such as the control of the communicable diseases or visiting at the home of the tuberculosis case. We may have generalized nursing which is now recognized as a more effective and efficient form of service and in which the individual nurse may perform duties in each of the various divisions of the medical service such as tuberculosis, communicable disease, child welfare and school services. The success with which the nurse meets in selling herself to the housewife and selling her personality and her story to the family depends upon her tact, her judgment, her training and, above all, her method of self expression.

It seems to me that too many health officers have lost sight of the fact that the public health nurse is the sole representative of the health department who reaches the average home. The family will naturally think of the health department in terms of this representative whom they have met. Up to the present time it has been the sanitary inspector who noses about the premises to ascertain whether the garbage receptacle is properly covered and whether the premises are strewn with filth or trash which is considered inimical to health. No wonder that the citizen has conceived the health department as an organization of law-enforcing officials whose duty it is to make life miserable for those lax in the care of sanitary appurtenances and an organization which occasionally sends around an officer to tack up a quarantine sign and inflict further unwelcome hardships upon the family life.

The public should think of the health department in terms of the nurse as an educator, as a friendly guide and consultant to assist in

solving the many simple but perplexing problems which accompany motherhood and child-raising. Let us substitute the vision of the sympathetic nurse for the unwelcome shadow of the law-enforcing officer. Some health departments have been endeavoring for the past few years to transfer the supervision of nuisances which are merely esthetically unpleasant in contra-distinction to those conditions of our environment which are inimical to our health to the police department of the municipality.

The health department because of the misconception which existed at the time when our official health organizations were first established, has fallen heir to many practices which are not rightfully its own. The public should look to the police department for matters of police protection including the safeguarding of the human sensory system against nuisances created by others. The citizen should look to the health department to satisfy the thirst for knowledge regarding disease prevention and vigorous health.

Are our nurses properly instructed so that they can serve as the sole representatives of the health officer in the home? They should know something about their own department, its purposes and aims and about public health in general. They should have some knowledge of vital statistics; there should be some conception of the meaning of death and birth rates. They should not be expected to learn a long list of figures which of themselves would be rather dry and uninteresting, but they should know whether 15 per 1,000 is a high or low death rate, and whether 40 per 1,000 births is a high or low infant death rate. They should have some knowledge of what the city is doing to supervise its milk and food supply. They should know what is being done in the field of sanitation and industrial hygiene, whether poor housing facilities have any relationship to ill health, and if so what are the features of ill-housing which most closely affect the incidence of disease. In short, the public health nurse should be conversant with the various activities of not only her own health organization but also those other organizations, whether official or nonofficial, which are assisting in the local health program.

Every health department should have a well established program whereby the new nurse receives instruction in public health administration and in the various organizational divisions of health work. These courses of instruction should be compulsory not only for new nurses, but a shortened course of instruction should be given to the older nurses in order that they may be kept in constant touch with newer developments and posted concerning the changes in departmental policy. If a program of this character is not effectively car-

ried forward by the health officer, he is missing a wonderful opportunity to sell public health to the people of his community.

Dr. Hastings has frequently made the statement that in order to be successful as a teacher of health the nurse must be a good conversationalist. I have heard Dr. Hastings state that he was not primarily interested in seeing the credentials of the new nurse employed by the Toronto Health Department, although it goes without saying that the credentials must be of the highest in order to obtain appointment in that organization, but he was particularly interested in having a 5-minute conversation with the new nurse to ascertain her ability for self expression. We are not suggesting that the public health nurse become an incessant talker or even a mechanical doll, but we are suggesting that she be taught the rudimentary facts of public health administration seasoned with much information of local application so that she may intelligently act as a saleswoman for the health department.

Increased Incidence of Epidemic Poliomyelitis in Southern California

THE California State Department of Public Health[1] recently reported a steadily mounting incidence of acute anterior poliomyelitis. Statistics were quoted for January, February, March, April, and the first three weeks of May, 86 cases in all being reported. Since then, 151 cases have been reported, making a total of 237 from January 1, 1930, to date. Further analysis as to age groups affected of 131 cases in June so far, indicates that 75 per cent are over 5 years of age. This brings the age group well within those attending summer camps, thereby constituting at this time a public health problem of no mean consequences. Moreover, this disease manifests itself ordinarily in the late summer and fall and increased incidence in early summer is generally an epidemiologic indication of the disease reaching epidemic proportions.

It is extraordinarily interesting to note that approximately 85 per cent of the cases were reported from Riverside, Orange, San Bernardino, San Diego and Los Angeles Counties. Furthermore, under such conditions, it is necessary that physicians scrutinize with all suspicion, any illness, particularly of the respiratory or digestive tract, in the affected age groups for the probable incidental paralysis may not occur in many cases. The control measures are well established but their effectiveness is uncertain mainly because of the healthy carrier.

REFERENCE

1. Calif. State Dept. *Pub. Health Bull.*, June 7, 1930.

Animal Infections with Bacteria of Genus Brucella and Their Relation to Undulant Fever of Man*

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YOUR Program Committee has asked me to discuss the deKruif article which appeared in *The Ladies' Home Journal* of September, 1929. I advised them that I would rather discuss with you what is known concerning the disease in animals caused by Brucella organisms, with special reference to its relation to undulant fever in man, and only incidentally refer to the deKruif article. This seems desirable, because, after stripping the article of its romance, exaggerations and embellishments, and after the omissions have been taken into consideration, we find that deKruif is, more or less, telling the truth.

I am glad that his article has made it possible to acquaint the reading public with the accomplishments of Alice Evans, who had already been recognized and honored by national and international bodies interested in bacteriology, medicine and public health. Aside from the opportunity to pay this well-deserved tribute to Miss Evans, the good done by the deKruif article is very questionable.

In various professional and scientific meetings and publications for the past three or four years, the attention of those interested in public health has been called to the necessity of recognizing and studying undulant fever in America, and epidemiologists and laboratory workers everywhere have been making studies. Provisions to safeguard the public health against infection have been considered and some put into effect. *The Ladies' Home Journal* article of September, 1929, may do considerable harm by forcing those making studies of undulant fever to express opinions or make regulations not supported by sufficient data.

In 1905, the British Malta Fever Commission[1] presented satis-

* Presented at a joint meeting of the Health Officers' and Dairy and Milk Inspectors' Sections at the 12th Annual Meeting of the League of California Municipalities, Oakland, Calif., October 9, 1929.

factory evidence to prove that goats' milk may be infected with a virus which is responsible for Malta or undulant fever in man, and that most of the cases in man were contracted by handling and drinking such milk.

After this report appeared, it became a rather general practice to attempt to connect all cases of illness showing symptoms which resembled those of Malta fever to the drinking of goat's milk or to other direct or indirect association with those animals. When this was not possible, especially in countries where it was not endemic, the disease often went either undiagnosed or wrongly labelled; in fact, in such places, Malta fever was most often not even considered, because, it was argued, there were no goats; or there had been no contact with goats; or there was no infection in goats and, therefore, it could not be Malta fever. Serum tests were seldom made. A complete change of attitude has taken place, first, in this country and then in others. Let us briefly trace the reason for this change of attitude.

After Smith and Fabyan[2] and Schroeder and Cotton[3] demonstrated that the *Brucella abortus* organism may be eliminated in the milk of some infected cattle, and that this organism was capable of inducing very pronounced lesions in experimental guinea pigs, it was naturally thought by a good many that possibly it was also pathogenic for man, and some evidence was gathered as early as 1911[4] and 1913[5] that such was the case. There was no thought of the relation of the abortion organism to undulant fever in man. Kennedy,[6] in 1914, reported the finding of agglutinins for *Micrococcus melitensis* in the milk and blood serum of cows.

Even after Miss Evans called attention to the similarity between the organism causing abortion in cattle and that causing Malta or undulant fever in man, little evidence of the pathogenicity of the bovine abortion organism for man was brought forward. The medical literature of various countries for five or six years after Miss Evans's discovery contained suggestions[7]; in fact, fairly good circumstantial evidence[8] indicates that such was the case. It was not until Keefer,* of Johns Hopkins Hospital, reported a case of undulant fever in one of the laboratory assistants, who had had no dealings with cultures, that the fact was definitely recognized that the source of the undulant fever infection in man may be other than caprine. This report was followed by more evidence presented by Carpenter and his associates,[10, 11]* and from that time the literature in this and other countries has been full of direct and indirect evidence showing that the goat can

* Italian investigators Viviani and Ficai and Allesandrini, at about this time, reported similar findings, but owing to the fact that Malta fever infection in goats exists in that country, their reports did not attract so much attention as the American reports.

no longer be held alone responsible for undulant fever in man, but that the cow and the hog must also be given serious consideration as sources of the virus.

An effort has been made to separate and differentiate the various organisms belonging to the genus Brucella. This has been beset by a great deal of difficulty, and at present it is far from being satisfactorily solved. However, it may be stated now that at least three varieties or groups or species of the Brucella organism are being recognized by many. These are *Brucella melitensis,** the old Micrococcus melitensis of Malta fever; *Brucella abortus,*† the most common cause of infectious abortion of cattle; and *Brucella suis,* the cause of placental infection and abortion in swine.

A discussion of the incidence of infections with one or more of the three varieties or species of Brucella organisms in man and animal may aid us in establishing the proper relationship of the disease in animals to that of man.

INFECTIONS IN MAN DUE TO BACTERIA OF GENUS BRUCELLA

Infections with all three varieties or species of this organism have been found in man.[12] For the present, we can dispense with a discussion of the *Br. melitensis* because this organism has long been accepted as the proven cause of undulant fever and, besides, we are concerning ourselves principally with human infections in localities where this variety is not supposed to exist. Miss Evans,[13] and I believe others, have identified melitensis organisms from human cases where the goat was eliminated as the source of the infection.

Regarding human infections caused by the other two varieties, a great deal of evidence is accumulating, some of it very convincing, while some is not. There is, however, only a meager amount of data which enables us to separate the bovine from the porcine infections in human beings. Huddleson[12] typed 35 human strains belonging to either one or the other of these two species and grouped 20 as *Br. abortus,* and 15 as *Br. suis.* I desire to emphasize that his methods of classification are not yet generally accepted and the number of strains examined is not large enough to permit general conclusions. It would not be amiss to emphasize also that variety does not necessarily indicate the source—this will become clearer from further discussion. These 35 human strains came from Rhodesia, South Africa, and from portions of the United States where the goat was not a factor in disease in man.

* Miss Evans prefers ***Brucella melitensis*** (variety A).
† and *Brucella* ***melitensis*** (variety abortus).

BRUCELLA INFECTION IN ANIMALS

Cases of *Br. melitensis* infection in sheep, horses, mules, dogs, cats, rats and even chickens have been reported[14] from various Mediterranean countries. Whether these were due to *Br. melitensis* or to other varieties of Brucella must at present remain unanswered. Infections in practically the same group of animals have been reported as also being caused by *Br. abortus*.[15, 16] Such cases due to either variety are very rare and are, therefore, of no great consequence in transmission of the disease to man. That infections in these animals occur is, however, worth bearing in mind.

Goat—That *Br. melitensis* infects this animal has been known since the British Malta Commission issued its report. The effect of this virus upon the goat is variable. As a rule, no ill effects may be noticed; at other times, abortion and mastitis in the female and orchitis in the male have been observed. Of interest is the fact that, in spite of the apparent good health of the infected animal, the organisms in large numbers are eliminated with the milk. Some authors[17] claim that the goat never rids itself of the infection. The urine of a large number of infected goats also disseminates the virus, and many cases of human infection are traced to this excretion.

Rare cases of goat infection with *Br. abortus*[18] have been reported, and probably more intimate exposure to this virus would cause more numerous infections. This possibility must be considered in making regulations concerning the sale of goats' milk in localities where bovine infectious abortion is prevalent and melitensis in goats is not present.

Swine—Huddleson[12] examined 20 strains from European and American infected swine, and all were placed in his *Br. suis* group.

The infection by this organism produces in swine a clinical picture more or less like that caused by melitensis in goats. They may be infected and show no ill effects. Infected animals may show placental and fetal infection with or without abortion. The organism may be eliminated in the milk. Males may have orchitis.

The disease has made its appearance in a limited way in California and in some of the mid-western states. In Europe, its distribution is even more limited than in the United States.*

This infection in swine is of only general interest to dairy and milk inspectors. By health officers and epidemiologists, it should be given careful and serious consideration in their efforts to trace the source of infection in human beings, since the variety infecting swine is con-

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* In personal correspondence, Axel Thomsen advised K. F. Meyer of a serious epizoötic of abortion in swine in Denmark. Cultures forwarded to Dr. Meyer were found by him on preliminary tests to be like our *Br. suis*.

sidered by some investigators[18, 19] as an important source of undulant fever in man in sections where *Br. melitensis* infection is not endemic.

Cattle—The infection in this species is no doubt of greatest importance to milk and dairy inspectors, because of its wide spread, because of the frequency with which this source has been justly and often unjustly associated with undulant fever in man, and finally because it concerns directly your official duties.

Infections with all three varieties of Brucella have been reported in cattle. Of 96 strains isolated from cattle, Huddleson[12] classifies 86 as *Br. abortus*, 8 as *Br. suis*, and 2 as *Br. melitensis*. Miss Evans[12] has also reported melitensis variety in cattle infections.

Agglutination tests on the serum from thousands of cattle in various parts of the United States showed that approximately 20 per cent have yielded positive reactions. From 30 to 50 per cent of these reactors, or from 6 to 10 per cent of the cattle, eliminated the organism in the milk. I believe that sufficient progress in controlling the disease has already been made to have considerably reduced these percentages.

In cattle, the effect of the virus is very much like that found in goats and swine. Cattle may show no indication of disease. Often infection reaches the pregnant uterus and induces inflammation of the placenta and fetus, resulting, in many instances, in abortion. This, as a rule, is not attended by any great inconvenience to the cow. Cattle may even give birth to apparently normal, full-time calves in normal manner and still have the infection in placenta and discharges, and in the udder and the supramammary lymph nodes. The infection generally leaves the uterus within 3 or 4 weeks—it rarely lasts longer—but may persist in the udder and associated lymph nodes for a longer period—in some cases, for years. However, a good proportion of infected cattle never show the virus in the udder or soon rid themselves of the infection in this organ.

Thus far, an attempt has been made to present briefly the conclusions and summaries of the available data bearing on the infection with Brucella varieties or species in animals and in man, and from these data we cannot escape the conclusion that, in countries or localities where melitensis infection in goats is not present, the infections of swine and cattle must be taken into consideration in hunting for the source of the infection causing undulant fever in man. To what extent each is responsible for such infection is not known, and the conditions under which it takes place are even a greater mystery.

It has already been pointed out that, in certain localities, the swine infection is considered an important source of the virus causing un-

dulant fever. In this connection the Keefer case, referred to early in our discussion and also made prominent in deKruif's milk article, is, from the epidemiological viewpoint, considered as possibly of porcine origin, since one of the duties of the patient had been the frequent collection of porcine fetuses from one of the Baltimore abattoirs. Smith[18] studied the Keefer culture and found it to be like porcine strains in its pathogenic effects on guinea pigs. It may also be stated that several of Carpenter's human strains,[20] apparently from milk-borne infections, are classified as *Br. suis*.

I have not attempted to analyze the large bulk of evidence collected in many portions of this and other countries to connect cow's milk with undulant fever in man. Some of it would be thrown out as insufficient to convict—some, however, is very convincing.

The fact that the infection in cattle is so widespread and affects so large a proportion of our cattle, and that such large numbers of our population are exposed to cattle infection, either by coming in contact with placental or fetal tissues which teem with abortion infection, or by consuming raw milk, cream or other raw milk products, which have resulted in comparatively few infections in human beings, has caused and still causes many to hesitate to accept cattle infection as a factor in the cause of undulant fever. These conditions simply indicate that man is very resistant to the bovine virus; nevertheless, the evidence now at hand forces one to the conclusion that certain infected cattle eliminate organisms belonging to the genus Brucella, which, under conditions not yet definitely understood, are capable of inducing symptoms of undulant fever in certain especially susceptible individuals.

PREVENTING INFECTION IN MAN FROM BOVINE SOURCES

It has already been established by controlled laboratory experiments that pasteurization,[21] if carried out according to the laws of California, which designate 140–145° F. for 30 minutes, will destroy the varieties of Brucella discussed in this paper. The melitensis and abortus species are not killed at 140–142° for 10 minutes, but are killed in 15 minutes. The porcine variety is a little more resistant and requires 20 minutes at 140° or 15 minutes at 142° to make it no longer viable. At 145°, all three varieties are destroyed in 10 minutes.

I wish to emphasize the fact that I have always been, and am at present, a proponent of efficient pasteurization as a method of making our general milk supply free from pathogenic organisms for human beings. There are, however, certain people who desire to drink raw

milk and certain physicians who recommend it; also there are certain localities in which pasteurization cannot be efficiently carried out. For this group, an effort is being made to provide, if possible, a supply of raw milk which will be free from *Br. abortus* organisms. Let us examine the known facts to see if that is possible.

It has already been stated that approximately 20 per cent of our cows are affected with abortus infection. It has been estimated from a fairly large number of guinea pig inoculations with milk that from 30 to 50 per cent—in some cases higher—of animals that react to the agglutination test will eliminate this organism, making about 6 to 10 per cent of our cattle that are eliminating organisms in their milk.

The work of Schroeder and Cotton,[22] Fitch and Lubbehusen,[23] and Carpenter and Parshall[24] shows that animals which do not react positively to the agglutination test for *Br. abortus* do not eliminate organisms in their milk. We[25] have found, however, that, in rare cases, an animal may be eliminating the organism and, at the same time, not react positively to the agglutination test. We have, however, further found that in 3 such cases one animal soon became a positive reactor and the other two ceased to eliminate the organism. King and Caldwell[26] obtained similar results. Thus, in a system of repeated applications of the agglutination test to cattle serums, as is now being practiced in eliminating the infection from herds, the chance of missing the rare cases which discharge the organism is further reduced.

If, in this connection, we take into consideration that the number of Brucella organisms in infected cow's milk is, as a rule, small,[27] that this is greatly diluted with milks from non-eliminating cows, and that even in the rare susceptible individual, epidemiologic studies indicate that large numbers of organisms are required to induce undulant fever, we may state that raw milk can be produced on a commercial scale which will not cause undulant fever in man.

Our present knowledge justifies such conclusion notwithstanding such statements as[28]: "Carpenter has pointed out that many cows which eliminate the organism in the milk do not react to the test." I made inquiry of Carpenter concerning this point, and he replied that he had published no data which would justify anyone in drawing such conclusion.

The Medical Milk Commissions of the San Francisco Bay region and also of the southern part of the state have adopted a rule by which no animal which reacts to the agglutination test is permitted to supply milk to certified milk trade. It seems only reasonable that if certified raw milk is not considered suitable for human consumption unless it comes from animals that do not react to the test, ordinary raw milk

should also not be allowed on the market unless it comes from animals which do not react.

In this effort to protect the public against possible infection with cows' milk, the goats in many places have escaped attention. It seems that the least that can be done with goats' milk is to insist that it be pasteurized, if that is possible, or that it come from animals which do not react to the agglutination test. I have not been able to locate any data on the correlation of the agglutination reactions of goat serums to the elimination of the organism in milk.

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Sterilization

THE fallacy of this claim of wholesale sterilization lies in the fact—and it is a fact—that the great majority of certifiable defectives are not the progeny of mentally defective parents, but of apparently normal or subnormal yet more or less self-supporting citizens, whom no sterilization laws could touch or seek to touch. The majority of victims of mental infirmity come of families who are the subject of some mental instability; whose germ cells are in some way faulty, and who may only be carriers of defect without themselves exhibiting any trace. If every certifiable mental defective had been sterilized twenty or thirty years ago it would have made little appreciable difference to the number of defectives existing today.—Dr. Frank A. Gill, *Brit. M. J.*, July 5, 1930.

Mental Hygiene in a Public Health Program*

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PHYSICAL hygiene is very closely interwoven with mental hygiene, which has as its objective the greater happiness and efficiency of the individual, and thus the mental betterment of the race. The boundary line between is hypothetical, although it was not until the last two decades that mental hygiene has been given an important place in the general campaign for the improvement and well-being of humanity. In the last analysis, the body is subservient to the mind, and will be ennobled or degraded according to the type of mind to which it gives habitat. The meteoric rise of the mental hygiene movement in the last twenty years is witness to its paramount importance in any public health program.

Every constructive movement has had the justification of an urgent need and this necessity has ever been the stimulus for practical and effective action. Unless these overwhelming needs are satisfied, human nature inevitably degenerates, and human aspirations are lost in chaos. Thus humanitarians, criminologists and health workers the world over are realizing the dire necessity for the improvement of the general health of individuals and races. There never existed a more true and striking need than that which is to be found in the present necessity for mental hygiene.

It is said that there are three types of lies—white lies, black lies and statistics—but there is fascination in statistics, and if carefully studied, they depict certain facts, and these show a real danger, which is more thrilling than the fictitious dangers found in many detective stories. Statistics from hospitals in the United States show that there are more persons mentally sick than physically sick in our hospitals. The admissions to these hospitals amount to 75,000 annually. One out of every 21 persons in the general population has been or will have been at some time in a mental institution, if not given proper mental hygiene to forestall the mental illness. This is even more

* Presented at the New England Health Institute, Boston, Mass., April 18, 1930.

graphic when we realize that 1 out of every 7 families shows a history of insanity. Thus we find that out of the 24,000,000 children now in our schools, at least 1,000,000 are destined to be blighted by mental disease, unless mental hygiene is applied; but it is encouraging to note that at least one-half of mental disease is preventable. Nevertheless, prevention does not consist in building more hospitals, nor does it imply the treatment of already well established and chronic diseases of the mind. Its program calls for the erection of protective measures many years before mental disease may be expected to develop.

Just as physical hygiene finds its most promising field among children, so human behavior or personality is most easily influenced in the right direction during its most formative period, that is, during childhood; yet, it is difficult to define clearly what is meant by personality, human behavior, conduct, or whatever you wish to call it. Perhaps, it can be best defined as the difference between an animal and a human, or rather it is the difference between animals and most human beings. Defectives who lack intellectual endowment can scarcely be credited with the possession of personality. Much controversy may therefore be avoided by speaking of personality as the sum total of the great number of sensory-motor reactions correlated by the mind or the voluntary responses of the individual to the environment.

All will agree that the functions of the mind are not separate or distinct entities but part of the correlated whole. The old psychology taught that the mind was composed of a number of cubby-holes, and each one was supposed to hold a special faculty, such as feeling, thinking, volition, etc., and was quite distinct from the others. This conception has become inadequate and so has been discarded.

Almost everyone knows that the body is made up of a great number of organs, each one of which has a certain function, and that the function of each of these must be timed in response to certain conditions and in proper relation to the other organs of the body, or it does not efficiently serve its purpose. The stomach must secrete its juices when food is introduced; the active brain must be supplied with an increased amount of blood; the kidneys and the skin must act harmoniously to excrete their waste products, and the respirations must increase on physical exertion. It is a function of the nervous system to organize the activities of the organs of the body so that they may be properly adjusted in relation to one another. This mechanism of pseudo-intelligent correlation rests in the vegetative nervous system, the simple reflex arc, the spinal cord and medulla; but under certain conditions may show the effect of the higher centers.

The outer layers of the cortex of the brain are thought to be the origin of thinking, and their functioning is interpreted as mind, as these functions regulate and control the actions of the individual as a whole. These functions learn how to react, and so are known as conditioned responses, but in order that these responses may be learned, the cerebral cortex must necessarily be brought into relation with the environment through the sense organ. If the person is to become an intelligent individual these responses must be coördinated, and the resulting conduct is the sign of personality.

In order that this conduct may be normal, the brain and the general nervous system of the individual must be healthy; otherwise, the adjustment of the individual to his environment cannot take place efficiently. If the individual is to adjust properly, it is necessary that he can profit from his experiences in the environment. The results of these experiences must be organized, associated and brought into relation with previous experiences, and the person must learn to transform these experiences into appropriate actions. As in physical processes, mental processes having once occurred, tend to recur in the same way when the same conditions are repeated.

Although it is important to take these fundamental facts into account, if an attempt to prevent or curb the incidence of nervous and mental disorder is to be considered, several other factors of prime importance must be noted. These are sound heredity, careful protection of the health of the mother during pregnancy, all possible care and skill at the time of delivery of the child, careful and sensible guidance through the first years of life, rational school training, proper supervision during the adolescent years, abstinence from drugs, sexual and alcoholic excesses, avoidance of syphilitic infection and other organic diseases which affect the nervous system, and, of course, prevention of conflict in general, anywhere in the environment.

Just as the principles of eugenics must be taken into account in the improvement of physical health, so necessarily this must be thought of when considering the possibilities of the inheritance of nervous or mental disorders. Where there is a possibility of hereditary taint, there should be no intermarriage, or certainly no children should be brought into the world from such progenitors. In most states, birth control advice cannot be given legally to this type of case, and in Connecticut it is even illegal to practice contraception. Realizing that there are types of mental disease and mental deficiency which have an hereditary tendency, a number of states, including Connecticut, have a law permitting sterilization under certain circumstances. While sterilization is of undoubted value in the prevention

of poor mental stock, the procedure can be logically recommended in only a very restricted group.

The health and environment of every prospective mother is a matter of vital importance to the mental hygienist. There has already been sufficient research work done to prove conclusively that the environment of the mother during the time that she is carrying the child definitely affects the child in utero. This may be shown by the sudden start that the unborn child gives when a sharp noise is made near the pregnant woman. If this is often repeated, the child of course does not get the necessary rest. Incidents in the emotional life of the mother, such as persistent worry, neglect, or other great emotional disturbances, and physical states, such as malnutrition, glandular dysfunction and renal disease, are found frequently in the prenatal history of children suffering from arrested development and cerebrospinal disorders. It is well to urge upon the prospective mother and her relatives that her whole physical and mental condition while she is carrying the child may have great effect upon the development of her baby.

Some children are born mentally defective, but this does not necessarily mean mentally diseased, although every case is a mental hygiene problem. Feeblemindedness is a state of retarded mental development due to a number of causes, including heredity, injury at birth, and certain diseases. Feeblemindedness, unless due to some physical condition, is not curable while, on the other extreme, under proper treatment glandular types show almost miraculous improvement. It must be remembered that certain individuals are judged to be feebleminded because of defects of hearing, vision, etc., which give them the appearance of being slow and backward, while all that is necessary is to correct the physical defect in order to alleviate the erroneous impression.

Feebleminded persons become social problems for the same reasons as other people. Barring bad environment and the lowest stages of feeblemindedness, such as idiocy and imbecility, a feebleminded person who is not afflicted with mental unbalance or some psychopathic condition has a fair chance, with the proper kind of training, to get along reasonably well in the community. Even the low grade defectives can be taught certain very simple occupations, much to their own benefit, with the result that it is easier to manage them in institutions. It is also possible to make them, to some extent, self-supporting in this way.

The importance of proper physical care of the child in the first months of life is recognized by all public health workers, but in no

less a degree is it important to follow with sensible training and discipline in the early years. It is recognized that the early environment makes a very definite imprint on the development, and it may be stated, without dispute, that many of the neuroses and psychoses of later life could be prevented if the child in its early years were guided sensibly with due regard to its emotional development.

It matters not whether the hereditary background be a simple neurasthenic, hysteric, or manic depressive personality, the family environment plays a very important rôle. There is a generally accepted opinion that heredity has a very big part in determining many of the mental diseases, but this belief is much too pessimistic to be accepted, for these predispositions many times can be counteracted, if not nullified by healthy environment. Every child at birth should be considered potentially normal, although it is important to watch with greatest care during the early, formative years, as he may show a tendency toward one of the neuroses or psychoses.

Children are normally imitative, and should they happen to be born to parents of the hysterical type, they are likely to imitate their performances, and become hysterical themselves. There is little use in instituting any form of treatment unless the hysterical child can be put under the charge, continued over a number of months or years, of an intelligent nurse, teacher or foster-parents, who will study its peculiarities and make a serious attempt to influence its behavior along natural, healthy lines.

In recent years special stress has been laid upon the earliest possible recognition of mental abnormality, as early diagnosis usually leads to the necessary steps to prevent mental disease later in life. This is the basic thought underlying the mental hygiene movement. It is the reason for the establishment of child guidance clinics, for careful personality studies, and for much of the social and psychological work that is now being attempted in the family, school, and industry. In all this work the assistance of the general medical man and the public health worker is needed, for they have in mind the physical well-being, and should also have the mental and moral development of the individual. They should know not only the child and the youth, but also the parents and their ancestry and should be willing to avail themselves of such facts as the social worker, psychologist or psychiatrist may provide. They should also be able to keep an open mind toward the many prevalent fads, but they should not be swept under by public enthusiasm.

From the physical side, as mentioned above, conditions may be present in the mother that will definitely affect the personality of

the child. Damaging toxic substances may be introduced through the walls of the placenta and a minute injury in the placenta may even allow the passing of a vast number of microörganisms into the child. If syphilis is found in the pregnant woman, she should be given intensive treatment; otherwise the child is likely to be a victim of neurosyphilis. It has been shown that tuberculosis, poliomyelitis, encephalitis and some of the other infectious diseases, or their toxins, may be transmitted to the child, causing definite damage to the nervous system, even before birth. It is, therefore, necessary to protect the mother carefully if the child is to be mentally healthy.

During labor, naturally the mother should receive first consideration, but unfortunately the physician or nurse does not always take sufficient cognizance of the actual injury that may be inflicted upon the child. Often its entire life is affected by improper obstetrical methods at the time of delivery, such as prolonged compression of the skull, protracted dry labor and unskilled instrumental delivery, which are responsible for many infantile cerebral lesions, especially the monoplegias and hemiplegias which may subsequently develop into epilepsy and which might well be prevented. If the public health worker is reminded of the fact that occurrences immediately before and during delivery not only may result in various forms of paralysis but may lead to something that is far worse, such as chronic epilepsy and idiocy, he or she will realize the obligations toward the child that is being helped into the world. These conditions resulting from the so-called birth accidents certainly are avoidable.

In recent years public health workers have become more and more aware of the fact that many of the diseases of childhood are apt to have neural sequelae. Most common of these are acute anterior poliomyelitis—occurring most frequently in children, but often in adults—epidemic cerebrospinal meningitis, and epidemic encephalitis, otherwise known as encephalitis lethargica. Since many of these diseases are extremely infectious, it is necessary to isolate the patients not only to prevent the spread of the disease, but also the almost inevitable mental conditions that follow.

Today mental hygienists are faced with a very grave problem in the number of post-encephalitis cases that are coming to their attention. But it has been found that the post-encephalitis syndrome need not necessarily be preceded by encephalitis lethargica, as some of the other high fever diseases, such as scarlet fever, often cause much the same "moral" deterioration. It should be emphasized here that the care of the patient suffering from any of these infectious diseases of the central nervous system plays an important part in the prevention

or restriction of the sequelae which are far more disastrous than the actual infection. In all these cases it is important to prolong the period the patient is in bed until every vestige of the inflammatory process has disappeared, and this should be followed by a very long-controlled, convalescent period with proper occupational therapy.

Syphilis as a precursor of nervous and mental disease is of paramount importance when it is realized that up to 73 per cent of all syphilitics develop neurosyphilis. Everyone with primary syphilitic disease should be considered potentially neurosyphilitic, and lumbar punctures for diagnostic purposes should be the routine rather than the exception. The prevention of neurosyphilis or general paresis, of course, means the persistent and thorough treatment of the primary disease. Because the malaria treatment of general paresis has shown such gratifying results, is no reason for delay in carrying out thorough treatment before any neurological signs develop.

There are a number of distinctive hereditary conditions; among these being Friedrich's disease, hereditary spastic paralysis, progressive muscular dystrophy, and amaurotic family idiocy. If anything can be done to prevent the development of these disorders it is only by ruling against marriage of individuals coming from families in which one of them has been prevalent. This of course necessitates a very careful family study and if the parties involved desire to marry they should be sterilized, as inevitably the disease will appear in their progeny. Some of them appear to be accompanied by endocrine disturbances and there is some question at present if immediate endocrino-therapy in new-born children from such families might not prevent the development of the disease later in life. When the presence of one of these diseases is established it is necessary to use every effort to counteract disturbances in normal locomotion and the general use of the limbs, which inevitably follow.

There are a number of functional disorders known as chorea and tics which apparently start on a definite physical basis, but become habits. It is therefore necessary to stop these conditions before they become established. At least one-fourth of these complaints seen in adults might have been prevented if they had been given thorough treatment in childhood. All sources of irritation should be removed, such as ill-fitting spectacles, irritating scars on the face or other parts of the body, ill-fitting collars and clothes, hair poorly cut and hanging over the eyes. Patience in training the patient to overcome these habits is a necessity.

So-called fainting spells and lapses of consciousness may be the first manifestation of the epilepsies, as may also be the convulsions of

early childhood. In no other type of disease is a complete physical examination of greater importance, for although the condition may be of emotional origin, it may be organic, and thus be starting a faulty habit pattern.

Disorders of the internal secretions play an important part among the preventable mental diseases. Of late years the physiological functions of the thyroid gland, the pituitary, the adrenal, the pancreas, and the sex gland have been studied so successfully that the use of these glands or extracts of them has distinct therapeutic and prophylactic value. Myxedema, cretinism or idiocy, hypo-pituitarism, various forms of distorted growth and various sexual abnormalities have been held in check or arrested in their extreme development by feeding the individual with one or the other of these glandular products. It is therefore very necessary to determine if there is an endocrinopathy present in the individual.

There are a number of emotional conditions which call for special attention. The obsessions of early childhood are most often based upon some experience, bad or otherwise, that the child has had, and which continues to hound him. Then there are so many individuals of abnormal habits seen in everyday life that the importance of checking such tendencies in early childhood cannot be stressed too strongly. Many physicians and public health workers do not seem to realize the effects of these emotions, for when a patient comes to them stating that he is afflicted with some physical impairment, and who in reality is suffering keenly, they often dismiss him with the statement that there is nothing the matter with him. This explains to no small extent the widespread use of cultists, such as chiropractors and others to whom these discouraged people so often go as a last resort, and getting attention, get relief.

Boys and girls of school age, and especially beginning with adolescence, are prone to mild mental disorders. Many of them are just nervous, some are hypochondriacal, and a considerable number are afflicted with a sense of inferiority, although this is by no means as common as the discussions on the "inferiority complex" would lead one to believe. In all such cases, it is a matter of the utmost importance that the home and the school environment be examined carefully and that the child in his relations to his family and to the other pupils at school be carefully determined. Personality studies will be most helpful providing the person conducting them shows a proper sense of proportion and does not exaggerate any complaints that are relatively unimportant. It is well to remember that every individual is expected to conform to conventional standards of behavior, and if he

cannot be made to do so it would be well to inquire into the reason why he is different from the average. In many cases, conditions have to be altered to meet the needs of a particular child, but it is well not to be too indulgent, and not to make too much ado over slight peculiarities in the behavior for this is likely to encourage the development of neurosis.

In children and in adults, speech disorders, headaches and insomnia are among the preventable complaints.

Among young adults, dementia praecox and manic depressive psychoses are the two conditions which cause more mental illness than any others, and it appears that although heredity may be a factor in these two conditions, environment or destructive experiences are the precipitating causes. In the adolescent period when usually the first great struggle for existence becomes manifest and the question of economic support first presents itself individuals are apt to subject themselves to unusual efforts. It is necessary that they realize that there are margins of safety and that a limit to endurance exists. Not every boy or girl is mentally fit to stand the strain of a college education. Certainly not all those who attempt to enter one or another professional career are fitted for such. If individuals are more carefully directed into the lines of work for which they are mentally and physically fitted, many of them will be prevented from later mental catastrophe.

The problem of the feebleminded, the epileptic, neurotic or psychotic is but one phase of mental hygiene, as it is something which affects all persons. Nothing is more important than the right mental attitude toward life's problems in general. No one can grow up from childhood and live a life of ordinary length without conflicts, doubts, and problems which tend to make adjustment to life difficult. Some cope with these problems with reasonable success; others simply cannot find a level, and may develop any one of a number of mental abnormalities or kinks and twists which interfere with their happiness and efficiency, and even more with the happiness of those with whom they come in contact. Unfortunately, few have a working knowledge of the rules of mental health. They do not even know that there is a group of specialists in the medical profession equipped by experience and training to help those afflicted with these abnormal mental states. One of the important items in any public health program is to get over by every educational means possible, better knowledge of mental health, the importance of preventing bad mental habits in children, and knowledge of the facilities for handling such problems in the community.

Mental hygiene has also a definite relation to the problem of crime,

but it is possible here only to make reference to it. There are many persons being placed in jail, and others being convicted of crime and sent to state penitentiaries, who are mental cases, but not always recognized as such. Some of the more enlightened states make careful study of the inmates of the state penal institutions, in order to determine their mental condition, and, where necessary, are placing the mental cases in proper institutions. While psychiatry is certainly not the entire key to criminality, it does play an important and distinct part. Although this fact is not as yet fully accepted, it is hoped that the time is not far distant when it will no longer be customary to pit one "mental expert" against another in the court room. Fortunately, some states have a definite committee of psychiatrists to examine offenders when a question of mental disease is raised, and which can scientifically recommend the disposition of these cases.

Among the most ancient problems confronting the human race are those connected with home, marriage and domestic relations. At present our ideas on these subjects are undergoing a rapid transition in America and throughout the world. Ancient views and fixed traditions are giving way before clear thinking. There is a confused difference of opinion as to what should be discarded and what retained. Whatever may be the viewpoint on the subject of marriage and divorce, it is generally accepted that there are far too many divorces for the general good of society. A careful study of statistics during the last forty years shows that legal separation is on the rapid increase. In 1887, there were but 5.5 divorces to every 100 marriages, by 1919, this number had increased to 10, and since 1919, to more than 15.

It is not surprising that welfare agencies of every type are looking about for assistance in studying this trend toward wholesale divorce. They have come to the mental hygienist to inquire what, if anything, can be done to better the situation by means of mental hygiene. Experience has shown that mental hygiene is not a panacea for this situation, as it is not for most of the other mental maladjustments. In fact the presence of the "mental expert" in the criminal courts has occasionally hindered rather than aided the cause of justice, but, it must be added, this often is due to untrained "experts." There is a great dearth of trained and experienced persons, who are competent to handle the delicate temperament of the would-be divorcee. The harm that inexperienced hands may cause in attempting to cure a mental situation is very great, and may even cause greater difficulty by such mishandling. Over-zealous enthusiasts often attempt to do what lies beyond them.

Recently there has been some enlightening research work done on

the subject of family relations. It was found that the causes for divorce were in the approximate order of importance as follows: temperamental incompatibility, physical dissatisfaction, restraint of personal freedom, ill-health, jealousy, differences over children, economic difficulties, relatives and "everything wrong." All will agree that most of these causes are purely mental maladjustments. If to these items are added undue pride, abject poverty, mental defect, unstable temperament, chronic illness or a combination of these, one can realize some of the mental stresses that impel people to divorce, and it is only by the diminution of these persistent annoyances that anything can be done to prevent or lessen it. This may need the care of a mental specialist, for the successful mental clinician is able to secure the subject's coöperation and the full and confidential statement of the patient's grievance as no one else can. The mere fact that he has given voice to all his pet worries is often sufficient to set him on the road to a new adjustment, for it is often the pent-up, petty annoyances that gradually lead to a wider and wider rift, which eventually ends in the divorce court.

When unmarried youth has been taught the facts of mental hygiene which concern marriage and living together happily, there will be less fear when marriage actually occurs. Somewhere these people must get an understanding of the necessary "give and take" of married life, must reach some conclusion as to the degree of temperamental difference they can permit; must gain some sane and sound views on sex and its relation to a happy marriage; must appreciate the differences of opinion that are likely to arise over economic difficulties, children, relatives, and social and religious affairs. This is one of the problems which mental hygiene is now working on, and which should be given the concern of every public health worker.

It is evident that in any mental hygiene program it is very necessary to study the individual as a whole, socially, physically, intellectually and emotionally. This necessitates a thoroughly trained psychiatric social worker who can study the environment. This may be a trained nurse who has had experience along this line, who can go into the home or school environment and study the conditions under which the individual lives in order to help the diagnosis of the case, or to find what may have to be changed in order to help the person readjust himself to society. The physician has to make a very careful physical examination in order to determine that there is no physical abnormality or inferiority present. Then the psychologist is necessary to determine the inherent intellectual ability of the individual to make such an adjustment, and the psychiatrist, taking the facts as

found by the others, and studying the individual from the emotional angle, tries to digest all the material obtained in order to determine whether it is the heredity, the environment or the individual that needs readjustment. Thus, only, can mental hygiene hope to succeed, and thus it is apparent that no public health program is complete without a very careful mental hygiene program.

Mental Development of Feebleminded Children

DURING a 9-year period, 86 children passed through a special school for defectives in Bath, and were discharged as follows: 27 per cent were passed to the statutory mental deficiency committee as imbeciles, that is to say, they proved unable to fend for themselves in life; 36 per cent were classified as low grade feebleminded, probably unable to fend for themselves; and 37 per cent were considered able to fend for themselves.

The actual results up to the end of 1925 are known as regards 52 children, of whom 42 per cent are at work fending for themselves, 10 per cent are out of work, apparently failing to fend for themselves, 25 per cent are at home incapable of work, and 23 per cent are in institutions. The fact that 42 per cent of the children trained in this particular special school were able to find work, and that only 23 per cent had to be placed in institutions, is at least encouraging; but, even so, there can be little doubt that the colony system on a large scale is the optimal method of dealing with certifiable mental defect in the bulk.—Abstracted from *Brit. M. J.*, London, June 14, 1930.

The Prevalence of Syphilis

THE Massachusetts Department of Health, coöperating with the U. S. Public Health Service, has just published a bulletin dealing with the ravages caused by syphilis and gonorrhea. When one bears in mind that these diseases are very incompletely reported it will come as a shock to many that during the 8 years embraced in this study (1920–1927 inclusive) the *reported* number of cases of syphilis was very much greater than the reported number of cases of scarlet fever, diphtheria, smallpox, typhoid fever and tuberculosis. The actual figures given in the bulletin are as follows:

35,083	more cases of syphilis than of scarlet fever	(42 states) *
1,017,465	more cases of syphilis than of diphtheria	(42 states) *
390,268	more cases of syphilis than of smallpox	(41 states) *
1,122,580	more cases of syphilis than of typhoid fever	(41 states) *
78,570	more cases of syphilis than of tuberculosis	(21 states) *

* Only those states reporting both diseases were included.

—*Weekly Bull.*, Dept. of Health, New York, N. Y., July 5, 1930.

Pulmonary Tuberculosis in Students*

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THERE can be no doubt that pulmonary tuberculosis in students is still a serious and unsolved problem which has not received the attention it deserves. So far as I know, no paper has ever been read before this association on the subject. In the *Proceedings of the American Student Health Association* I found that the last paper given on tuberculosis was by Dr. J. A. Myers and Dr. W. B. Shepard of the University of Minnesota on January 1, 1925.[1] Their paper is a record of 4 years' experience and covers 152 cases. It is possible that the reason our attention has not been attracted to this subject before is that many of the cases of pulmonary tuberculosis develop after graduation and for this reason do not fall under the observation of the Health Service. Our problem is chiefly the detection of tuberculosis in its early stages and arrested cases.

Pulmonary tuberculosis between the ages of 16 and 25 is usually of the adult type and, while it cannot be definitely proved, usually represents a new infection. The so-called infantile type, although it starts in the lung tissue, involves chiefly the tracheobronchial glands and constitutes what we now know as hilum tuberculosis. Probably most people who reach adult life, especially those who live in cities, have had an infection of this kind of greater or less extent and the X-ray may show some evidence of it in the hilum of one or both lungs. The adult type commences in the apex of the lung and is unaccompanied by tuberculous lesions of the adjacent lymph nodes.

In addition to the healed infantile lesions which most of our students will show, many of them will have pulmonary tuberculosis of the adult type. These may be apical or, as some writers are now calling them, infra-clavicular in location, and in any stage of development. The process may be latent with no signs or symptoms and only detectable with the X-ray. Again, it may be moderately advanced with definite but meager clinical signs, with no symptoms but with confirmatory X-ray evidence of lung pathology. Also, the process may

* Read at the Sixth Annual Meeting of the Ohio Student Health Association, Columbus, O., April 4, 1930.

be far advanced with abundant clinical signs, slight or marked symptoms, and with X-ray evidence of a serious lesion.

I have had considerable difficulty in finding any accurate figures on the incidence of tuberculosis between the ages of 16 and 25. Hetherington[2] stated that in Philadelphia, between the ages 12 and 18, 0.6 per cent had manifest tuberculosis, 0.8 per cent latent apical tuberculosis, and 1.2 per cent latent infiltration of childhood type. This makes a total of 2.6 per cent detectable tuberculous lesions in that age period. Similarly, from the work at the Henry Phipps Institute,[3] we learn that infiltrating lesions of the lungs, including both latent and manifest, are found in 2.0 per cent of boys aged 12 to 20 and in 3.4 per cent of girls.

From the evidence presented, I think we are safe in assuming that on admission to college 2 to 3 per cent of our students should show infiltrating lesions of the lungs. From the report of Dr. Myers and Dr. Shepard on conditions at the University of Minnesota and from our experience at Western Reserve University, I am led to believe that in varying degrees there is a tuberculosis problem at every institution of higher education in the country. In the school year 1927–1928 at Western Reserve we had 7 cases of tuberculosis, 5 girls and 2 boys, and 52 cases who had been in contact with tuberculosis. Two of the positive cases died during the year. In the school year of 1928–1929 we had 17 cases of tuberculosis, 12 boys and 5 girls, and 106 contact cases. There was 1 death and 2 students left college to go to sanatoriums.

Now let us enumerate without comment some of the factors in student life which may influence the development of tuberculosis. You are already familiar with these and it will not be necessary to elaborate upon them. They include change of climate, too strenuous and poorly organized social life, outside work, poor health habits, and neglect of upper respiratory infections. Under poor health habits might be enumerated lack of sleep, over-work, over-fatigue, poor food, poor living conditions, neglect of ordinary upper respiratory infections and nervous strain.

Perhaps you would be interested in a brief résumé of what I regard as a satisfactory program for the control of tuberculosis in students. The starting point is an adequate history of each individual, giving in detail the facts of his family life and his own life up to the time of his admission to college. It is very unwise to depend alone for this information on the written statement of the student which has been given on a health service blank. The examiner should in every case question the individual carefully in order that hidden and

obscure things may be brought out. Often that which in this history has been called asthma, bronchitis, pleurisy or nervous breakdown, will be found to have been tuberculosis. This history of tuberculosis in the individual or family is of great importance, for it determines how the student shall be handled while in college.

Not only is an accurate history necessary but a thorough physical examination is equally important. The initial examination should be very thorough and complete, and my own feeling is that each student should have a similar examination every year. I realize that some of you are not thoroughly convinced that this is essential but speaking from the standpoint of tuberculosis and knowing full well how insidious it may be in its onset, I feel sure that this yearly examination is an essential. In order to discover the early and latent cases of tuberculosis, the lung examination must be as complete as the one which a tuberculosis specialist would make, and should include coughing and breathing. I feel sure that without coughing many of these cases will be missed.

Austrian[4] states:

> The most constant and significant sign of tuberculosis of the lungs is a shower of medium moist inspiratory rales heard constantly over one or the other apex, in the first or second interspace, or above the spine of the scapula with or after expiratory cough. In patients with recent infiltration, these adventitious sounds are not audible during quiet breathing but are heard only during forced respiration or are elicited by a quiet cough made at or near the end of expiration. Often the reason that they are not heard is because the observer does not instruct his patient to exhale first, then to cough gently, and then inhale while he, the listener, concentrates his attention upon the sounds heard during the cough and the beginning of the succeeding inspiration.

Admitting that we have been able to obtain from the student an accurate family history, and a complete history of his own health up to the time of his admission to college, and also that he received a thorough examination on admission and yearly thereafter, what will be the next step in our program for the control of tuberculosis? These histories should give us a complete list of all students who have been in contact with tuberculosis in their families or elsewhere. Of course there are many cases of tuberculosis in families that are not known and also many where the parents have not told the child the real nature of the disease from which they have suffered. Besides there is the large group of cases where, although tuberculosis has been known to exist, the fact has been carefully concealed from the general public. As it is well known that active tuberculosis in the family is the chief source for the spread of tuberculosis, it is extremely important that

all of these contact cases be very carefully handled. This would involve an X-ray of the lungs soon after the initial examination has been made. Even if negative, the student should have repeated physical examinations at intervals of 3 to 6 months throughout his entire college course. The X-ray should be repeated once a year even though there are no signs or symptoms of pulmonary disease. The importance of this will be brought out later in discussing the arrested cases.

In addition to the above there are many other factors which enter into the proper care of these contact cases. For instance, should they at any time during the year develop upper respiratory infections, their lungs should be repeatedly examined and, in addition, if signs are found suggesting even a bronchitis, the X-ray should be repeated. We are commencing to realize that upper respiratory infections play a very important part in producing mediastinal and pulmonary diseases and it is very probable that if the lungs are examined during even a mild so-called "cold," lung signs may be elicited which would lead to a diagnosis of pulmonary tuberculosis. So impressed am I with this one phase of upper respiratory infections that we have made it practically a routine procedure in our Health Service to make a lung examination in all cases although the symptoms may be almost entirely confined to the nasal passages or pharynx.

The habit life of all the cases that have been in contact with pulmonary tuberculosis should be carefully regulated. In other words, although the disease cannot be demonstrated clinically or otherwise, they should be regarded as cases of latent tuberculosis and treated accordingly. This should not be carried to the point of arousing their suspicion or causing any needless worry in regard to their own condition, but they should be taught to treat the matter of their habit life in a sane, sensible light. It is obvious that if a student who is a contact case is working his way through college and is subjecting himself to unusual strain he may be in grave danger of developing active tuberculosis. Last year we had two such cases. The balance by which the body is able to resist an invasion of tubercle bacilli is an extremely delicate one and may be tipped in favor of the invading organism by over-fatigue, lack of sleep, long hours of study, nervous strain, lack of exercise in the open air, poor food, and many other things which enter into the habit life of the individual. Also these students should be taught to consult the Health Service for even the slightest illness, especially upper respiratory infections, chest pains, loss of weight and loss of strength.

Last year we had under observation 106 tuberculosis contact cases.

At present we are in the midst of having lung X-rays taken of all of our contact cases. From my own experience and that of the Henry Phipps Institute,[5] I am firmly convinced that the X-ray is one of the most helpful means for the diagnosis of latent and arrested pulmonary tuberculosis. The X-ray may show extensive lung involvement where the lung signs and symptoms are either meager or entirely absent. Reid[6] reports that in the fluoroscopic examination of 4,883 applicants for employment by the Metropolitan Life Insurance Company, 59, or 1.21 per cent, passed with negative chests on physical examination, showed anatomical tuberculosis.

With these facts in mind I feel quite certain that the time is coming when we will regard a routine lung X-ray as an essential part of every complete examination. The justification for this procedure rises in the fact that many of our students have been exposed to unknown focuses of tuberculous infection in their homes, and at the time of admission, although they may give a negative history, they may very well be either latent or arrested cases of pulmonary tuberculosis. Many of these, no doubt, would be discovered by routine X-rays and the problem is simply one of reducing the expense of such a procedure to a point where it can be consistently borne by our Health Service budgets. Certainly at the present time we are entirely justified in having X-rays of all of our contact cases and of all suspicious cases with lung pathology and symptoms such as loss of weight, loss of strength and low vitality. When we have obtained from each new student a complete history, when we have given him a complete and thorough physical examination and have obtained an X-ray of his lungs, I feel sure that on admission we will find many cases of pulmonary tuberculosis which escape us at the present time.

In addition to the contact cases the inventory of our student body is sure to reveal a considerable number of arrested cases of pulmonary tuberculosis. Many of these will not know that they have had tuberculosis and recovered from it. This group, like the contact cases, demands very close attention from the Health Service. The reason for this is that almost without warning an arrested case may become active and it is surprising how quickly this change may occur. I could give you a case report where within 10 days the signs changed from a quiescent condition to marked activity. No doubt many cases which are regarded simply as hard colds or coughs which hang on, are in reality tuberculosis. As in regard to the contact cases, the arrested cases should be carefully educated to come to the Health Service for all sorts of minor ailments. Likewise their habit life should be extremely carefully adjusted and if necessary their academic schedule

should be reduced to the point where they can carry the load without danger to their health. It is particularly important also that they should treat with the utmost respect all infections of the upper respiratory tract.

The important consideration in these arrested cases, which have been picked up either through physical signs or X-ray, and also in the contact cases, should be frequent physical examinations and frequent X-rays. In general an arrested case should be examined at least every 2 months and have an X-ray every 6 months. The reason for this is that we are not at all sure that lack of physical signs is proof that the process in the lungs is not spreading. The student may seem perfectly well, may have no symptoms, no loss of weight, and no extension of clinical signs, and still the X-ray may show a definite extension of the process in the lungs. It is this which makes me recommend the repeated and frequent use of the X-ray in these cases. We have come to regard a definite X-ray spread as just as serious a matter as a clinical and symptomatic spread, and I could show you the picture of a case which showed an extensive X-ray spread and is still clinically perfectly well. Of course, as soon as any case changes from the arrested stage to the active the indications are for the student to leave school at once and receive appropriate treatment.

Next let us consider the cases of active tuberculosis which either are found by the first examination or develop later. It seems probable that even with the program which I am proposing to you, we will still continue to find such cases. Of course all such persons should be dismissed at once in order to protect themselves and the student body. I have no doubt that one active case in a fraternity, a boarding house, or even a classroom may be responsible for the development of other cases. We have a record of an open case of pulmonary tuberculosis in a fraternity which seems to have been responsible for the development of two other cases.

Of course some of these cases which apparently develop spontaneously, as I have suggested, may represent a massive infection from contact with an open case. It seems likely that many of them are simply arrested cases of pulmonary tuberculosis which have not been discovered by the physical examination. Many of these could be picked up by the routine X-raying of each student upon admission but even then it is possible that some might be missed, for the interpretation of lung X-rays, from the standpoint of the diagnosis of tuberculosis, is still extremely difficult. Admitting that some of this group are undetected arrested cases, the importance of the yearly physical examination can be readily seen. Sooner or later they may

develop signs, and it seems probable that these may precede the symptoms. As already stated, a person may have progressive pulmonary tuberculosis and still have no symptoms whatever.

Again, some of this group may be picked up through chest examinations while they have acute upper respiratory infections. It is obvious that the acute infection may light up the arrested process in the lungs and give signs which can be detected on routine examination. It would seem, therefore, that our chief means of detecting these cases are the yearly physical examination, the lung examination during acute respiratory infections and X-rays of all cases who show symptoms suggestive of pulmonary disease. It would seem that we should constantly be suspicious of deep seated, unknown tuberculosis in all of our college students, and not neglect any means at our disposal for its detection.

Lastly in my program for the control of pulmonary tuberculosis in our students I would like to propose a few things which all of you recognize as a real menace to health in general. I mean, particularly, regulation of the social life of the students; more careful adjustment of their habit life, eating, sleep, etc.; the careful supervision of all who are doing part-time work outside of their regular schedule; the readjustment of our programs of physical education so that the program will carry through all 4 years of undergraduate work and through professional school courses. No doubt many other things will come to you which we might do in order to protect the general health and thus prevent much tuberculosis.

Two thousand years ago a great teacher said: "Ye shall know the truth and the truth shall set you free." Nowhere is this truer than in the realm of health. We should, by patient and coördinated effort, be able to strike the shackles of an insidious disease from the lives of hundreds of those entrusted to our care. Then and only then can we count our task as well done. Who can measure the new power, the new strength, the added capacity for happiness, growth and service that may be released thereby?

SUMMARY

1. Pulmonary tuberculosis in students is still a serious and unsolved problem. It is usually of the adult type, insidious in onset and difficult to detect except by X-ray when there are no symptoms.

2. The incidence of pulmonary tuberculosis in students is hard to determine; it probably is between 2 and 3 per cent.

3. Special factors in student life which may favor the development of tuberculosis are: change of climate, too strenuous and poorly organized social life, outside work, poor health habits and neglect of upper respiratory infections.

4. A program in detail is presented for the solution of the problem:
Adequate history
Physical examination of all students on admission and yearly thereafter
Lung examinations to be especially thorough
X-ray of lungs of all students on admission is suggested
Special care and examinations (including X-ray) for—
a. Contact cases
b. Arrested cases
c. Cases with suspicious symptoms
d. Upper respiratory infections

Early detection of active cases and immediate dismissal to avoid spread of infection in dormitories, etc.

More careful adjustment of the entire habit life of students including social activities, outside work, recreation, etc. The recommendation is made that physical education programs should continue throughout each year of the entire undergraduate and professional school courses.

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Polish Health Centers

HEALTH centers were first developed in Poland in 1925 through grants from the Rockefeller Foundation. On January 1, 1929, there were 140 health centers in Poland.

Each center is required to attend at least to the health of mothers and infants and anti-tuberculosis efforts; several centers have also organized anti-venereal, anti-trachoma and dentistry sections; some are engaged in the anti-alcohol campaign and in combating malaria; school hygiene is almost always among their activities.

The cost of building, management and upkeep of the health centers is met by the big urban communes, the communal administration of the several districts and partly by the sickness insurance funds; the state also makes certain grants to encourage them.

Prof. W. Chodzko, writing on "Making the Country Healthy" in the *Bulletin de l'Office Internationale d'Hygiene*, 1928, thus expresses himself:

> If these Health Centers go on developing as rapidly as they are doing at present, we can expect our country soon to be covered by a network of institutions, embracing all the problems of public health and preventive medicine, and the health organizations of Poland, once this plan has been put into effect, will be definitely established on a solid, practical, and rational basis.—*Internat. Rev. Educational Cinematography*, May, 1930, pp. 525–530.

Physical Measurements of One Thousand Smith College Students

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IN a study of physical measurements of young women of today and of 40 or 50 years ago, it is difficult to find groups sufficiently comparable. The girl of today is an athletic person accustomed from early childhood to active participation in strenuous outdoor games. She has never known the restraint of heavy, tight clothing, and the equally curbing influence of public censure demanding that she be sedate. The increase in her physical activities throughout childhood and adolescence should show itself in the development of the grown woman.

The woman's college offers an excellent opportunity for a study of physical measurements of a large group of individuals finely selected in regard to age, intelligence and health; yet standards of physical measurements of college women are not readily available. The personnel of the hygiene department has generally too full a schedule of examinations, college dispensary and infirmary work, to attempt to correlate or interpret the findings which it records. Whether the group of college women of today and of 40 or 50 years ago is similar may also be questioned. It is now the fashion to go to college, and the girl expects to train herself to be self-supporting. In the past it was the unusual girl who went to college. She had special abilities, or keen ambitions, or for some reason wanted to gain recognition by special attainments.

The following study of physical measurements of 1,000 Smith College students was made possible through the courtesy of the college physician, Dr. Anna Richardson, and other members of the hygiene department, in allowing the use of records jointly compiled. In selecting the material the following restrictions have been made: All cases spent a limit of 4 years at college and graduated between the years 1926 and 1928, inclusive. The age range on entering college was restricted to those entering between 16 and 20 inclusive.

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In measurements of height the horizontal sliding square was used, the vertical bar being marked in inches. In measurements of height two records may be made—the first the student's height with her usual posture, and the second with her best or corrected posture. For this study the first measurement has been used. The records are taken from the student's examination on entering college in the fall and again just before graduation in June, 4 years later.

The age of the entering student is given at the nearest birthday. Since the measurements are not exactly 4 years apart it is apparent that if the age at nearest birthday of an entering student is 17, her age at nearest birthday on graduation may be 20 or 21. No correction has been made for this since it may be assumed that there can be but slight differences in the measurements in the few months.

In comparing weights of students to standard scales it is often found that the apparently healthy girl may vary from 10 to 15 pounds below the standard, or 15 to 20 pounds above. This is not always due to malnutrition or obesity but may be explained on the basis of physical builds. These have been described as slender, intermediate or stocky. Dr. Goldthwait has described the two extremes as follows:

> The slender flexible individual has long been selected for the contortionist, the fancy dancer, the pole vaulter, the short distance runner. He has been the pioneer of the race, the "Uncle Sam" type. . . . The heavy or stocky individual with thick chest, heavy limbs, broad hands and feet has been used as the weight lifter, the hammer thrower, the shot putter, the wrestler, the football center, the slower moving conservative or stabilizer of the race, the "John Bull" type.[1]

Standards by which to measure accurately variations in build are not available and probably would be impractical in a physical hygiene department. In this study the students are included in the intermediate group unless they are definitely of the slender or stocky type.

Since the study was restricted to students entering college between the ages of 16 and 20 and only those students were included who completed the course and graduated 4 years later, the measurements included data from examinations of women between the ages of 16 and 24 inclusive. Of these students 7.3 per cent entered college at 16, 31.5 per cent at 17, 42.6 per cent at 18, 16.4 per cent at 19 and 2.2 per cent at 20.

On grouping the students according to type of build it is found that a higher percentage of students of the stocky type starts college at an earlier age, the proportion decreasing from 28.8 per cent at 16, to 17.7 per cent at 17, 16.6 per cent at 18, 12.8 per cent at 19 and 14 per cent at 20. The group of students entering at 16 contains only 19.1 per cent of the slender type, but this percentage rapidly rises to

TABLE I

MEDIAN WEIGHT OF ENTIRE GROUP OF STUDENTS AT ENTRANCE AND GRADUATION

Entrance		Graduation	
Age	Weight	Age	Weight
16	130	20	129
17	126	21	126
18	121	22	122
19	126	23	123
20	124	24	128

30.2 per cent at 17, 32.2 per cent at 18, 43.9 per cent at 19 and 45.4 per cent at 20. The percentage of students of the intermediate type remains fairly constant for all ages, varying from 40.9 to 52.1 per cent. In the entire group of students, regardless of age, there are 50 per cent of the intermediate type of build, 32.8 per cent of the slender build, and 17.2 per cent of the stocky build.

The fact that the sturdily built girl is sent to college earlier may be due to several factors. The first is that of disease experience. The person with a slender build is considered by hygienists a greater health problem throughout childhood.[1] Another factor may be a difference in parental attitudes. The slender girl may seem merely a child to her parents whereas the stockily built girl is expected to be self reliant. Finally, a study of menstrual periods indicates that the girl with the slender build is physically immature. This is consistent with Baldwin's findings that the tall heavily built girl tends to mature earlier.[2] It may be that this immaturity is not only physical, but that the girl is actually less prepared to be away from home.

Catamenia began during the 13th year in 37 per cent of the total group, and in 81 per cent had been established at either 12, 13 or 14. The variations in age at onset range from 9 (1 case) to 19 (1 case). Considering age of onset of catamenia in relation to type of build, catamenia began by the end of the 14th year in 94 per cent of the stocky type, 91 per cent of the intermediate type, and only 85 per cent of the slender type. The age of onset varied in the slender type from 10 to 17 inclusive, the median age being 13 years and 10 months. The onset range for the stocky type ran from 11 to 16 inclusive, and

TABLE II

MEDIAN WEIGHT OF STUDENTS GROUPED ACCORDING TO AGE AND TYPE OF BUILD

Type	Median Weight								
Slender	112	111	111	111	114	114	116	115	113
Intermediate	125	125	123	124	124	126	126	123	120
Stocky	145	148	144	147	143	147	135	144	144
Total	130	126	121	126	127	126	122	123	128
Age	16	17	18	19	20[1]	21	22	23	24

1. Students entering college at 20.

the median age was 13 years and 3 months. In the intermediate type the median age of onset was the same as the median for the entire group, 13 years and 6 months.

The periodicity of menstruation was of the 28-day type in 67 per cent of the entire group; 2.5 per cent had a periodicity of 21 days; 4 per cent each of 30 and 31 days; 7 per cent varied between 21 and 28 days; 5 per cent had a periodicity of 35 days, and 9.4 per cent had irregular periods varying between 5 and 8 weeks. Finally, 1.2 per cent had irregular very infrequent periods, 7 of this group of 12 belonging to the slender type and the remaining 5 to the intermediate. In relation to type of build, only 10 per cent of the stocky type did not have periods once a month or more frequently, whereas 19 per cent of the slender type had periods every 5 weeks or less often.

The median weight of the entire group of 16-year old students entering college was 130 pounds, of 17-year old students 126 pounds, of 18-year 122, of 19-year 126, and of 20-year 124 pounds. The chief factor determining these weights was the proportion of slender and stocky students in the group, there being a larger proportion of stocky type students in the 16-year group. There was no consistent increase in weight in the students during college. The median weights of students entering at 16 and graduating at 20 were 130 and 129 pounds. The median weights at entrance and graduation of 18-year old students were 121 and 122 pounds, of 19-year old students, 126 and 123 pounds, and of 20-year, 124 and 128 pounds. The median weight of 17-year old students was the same, 126 pounds, on entrance and graduation. Tables I and II show the median weights of students grouped according to age and height in inches, and the median weight of each type grouped according to age.

The median weight of the slender type, grouped according to age, ranged between 111 and 116 pounds. The greatest weight in students of this type was 142 pounds, and the least weight 90 pounds. The median weight of the stocky type ranged between 135 and 148 pounds, the greatest weight being 206 pounds, one case, and the least 119 pounds. The weight of the intermediate group ranged between 120 and 126 pounds, the greatest weight was 151 pounds and the least 103 pounds. Although the examiner may have considered some of these students over or undernourished for their height and build, no note has been made of these observations.

There was no consistent increase in height in the group as a whole or in the group divided according to type. The median height determined for each age level and type of build ranged between 63.5 and 65.4 inches. Table III shows median height in inches of students

grouped according to type of build and age. The height level varied from 58 to 70.9 inches.

TABLE III

MEDIAN HEIGHT OF STUDENTS GROUPED ACCORDING TO AGE AND TYPE OF BUILD

Type	Median Height									
Slender	64.5	64.9	64.8	64.6	63.5	64.7	65.0	64.9	65.0	63.6
Intermediate	64.9	64.4	64.6	64.2	64.3	65.1	64.6	64.6	64.7	65.4
Stocky	64.3	65.1	64.8	64.8	64.3	64.7	65.5	65.5	64.8	64.7
Total	64.6	64.7	64.7	64.5	64.0	64.8	64.8	64.8	64.8	65.2
Age	16	17	18	19	20[1]	20[2]	21	22	23	24

1. Students entering college at 20.
2. Students graduating at 20.

To obtain comparative studies of physical measurements of school and college students, records from twenty-five to fifty years ago, Baldwin's bibliography has been used.[2] In each case the group compared has consisted of school or college students. The groups studied are listed as follows:

1. A report of 10,904 female school children in Boston, studied by Bowditch in 1875[3]
2. Measurements of 1,600 Oberlin students made by Hanna in 1893[4]
3. Porter's study of 16,527 female school children in St. Louis in 1894[5]
4. Gilbert's study of 50 women students at the University of Iowa in 1897[6]
5. Hastings' study of 7,069 University of Nebraska women students in 1902[7]
6. Baldwin's study of 88 Swarthmore students published in 1921[8]

With the exception of Gilbert's group and the upper age levels of Hanna's group the median height of the Smith College students at each age level is greater than those found in the comparative studies. The median weight of Smith College students of the intermediate and stocky type is greater than the weight listed in the comparative studies, with the exception of Gilbert's records. There has been no consistent increase in weight with age in the Smith College group as recorded in each of the comparative studies. Tables IV and V show the

TABLE IV

MEDIAN WEIGHT OF SMITH COLLEGE STUDENTS, GROUPED ACCORDING TO AGE, COMPARED WITH PREVIOUS SCHOOL AND COLLEGE MEASUREMENT FINDINGS

Study and Date	Weight in Relation to Age								
Smith College, 1926–1928	130	126	121	126	127	126	122	123	128
Bowditch, 1875	113	117	116						
Hanna, 1893	84	99	101	106	113	119	124		
Porter, 1894	110	115	115	115	118				
Gilbert, 1897	111	120	124	126					
Hastings, 1902	110	110	110	112	115				
Baldwin, 1921		115	120	120	120				
Age	16	17	18	19	20	21	22	23	24

TABLE V

MEDIAN HEIGHT OF SMITH COLLEGE STUDENTS, GROUPED ACCORDING TO AGE, COMPARED WITH PREVIOUS SCHOOL AND COLLEGE MEASUREMENT FINDINGS

Study and Date	Height in Relation to Age								
Smith College, 1926–1928	64.6	64.7	64.7	64.5	64.8	64.8	64.8	64.8	65.2
Bowditch, 1875	61	61	61						
Hanna, 1893	59	62	61	62	63	65	64	65	
Porter, 1894	62	62	62	62	62	62			
Gilbert, 1897	63	64	64	64					
Hastings, 1902	62	62	62	62	63				
Baldwin, 1921		62	62	62	63				
Age	16	17	18	19	20	21	22	23	24

median height and weight of the Smith College students, grouped according to age, compared with the previous findings at other schools and colleges. In this comparison no attempt has been made to weigh the comparative importance of such factors as differences in physical activity during childhood and adolescence, and differences in economic conditions and racial backgrounds.

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Tuberculous Patients in New Jersey Sanatoriums

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THIS study covers all the admissions to the state and county sanatoriums during the year ending June 30, 1929, and all the discharges from and deaths in them for the same period. It was undertaken for the purpose of throwing light upon the developments in the tuberculosis sanatorium field in New Jersey; the characteristics of patients entering them; the conditions under which patients leave tuberculosis institutions; the social and economic problems created in the home by the hospitalization of the individual patient; and the extent to which communities meet their tuberculosis problems and carry out the work of tuberculosis prevention effectively.

As a background Table I is presented showing the extent to which New Jersey has provided sanatorium facilities during the last decade.

A 52 per cent increase in the number of patients in state and county tuberculosis sanatoriums per 100,000 population has occurred during the 10-year period 1919–1929. This means that, out of every 100,000 population, 48 tuberculous patients were hospitalized in 1929 as against 32 in 1919. The actual number in the institutions has risen from 996 in 1919 to 1,887 in 1929, an 85 per cent increase.

These figures do not mean that there is an actual increase in the

TABLE I

Population All N. J. Sanatoriums as of June 30

Year	All Sanatoriums		State	County
	Number	Rate per 100,000 Population of State	Sanatorium	Sanatoriums
1929	1,887	48.4	356	1,531
1928	1,675	43.8	289	1,386
1927	1,599	42.6	286	1,313
1926	1,394	37.8	266	1,128
1925	1,269	35.2	255	1,014
1924	1,240	35.2	256	984
1923	1,205	35.1	236	969
1922	1,312	39.2	249	1,063
1921	1,124	34.2	235	889
1920	998	31.3	225	773
1919	996	31.8	225	771

number of tuberculous in the state, as only 5,204 new cases were reported in 1929 as against 7,460 in 1919, and the death rate for the period shows a decrease of 30.0 per cent; they indicate rather that New Jersey is taking better care of its patients and making available greater sanatorium facilities where they may be treated, and removed from the community where they are a source of infection. Clinics are seeking out active and contact cases for hospitalization and the people are recognizing the value of sanatorium treatment in an increasing measure.

FIRST ADMISSIONS

During the year ending June 30, 1929, 3,075 persons entered sanatoriums (1 state and 11 county); of these, 83.1 per cent were first admissions and 16.9 per cent readmissions. Of the total of 3,075 admissions 54.3 per cent were males and 45.7 per cent females. Eleven patients were admitted by transfer from one sanatorium to another in the state. Discharges numbered 2,136 and deaths 727. On June 30, 1929, there were 1,887 patients in these institutions of whom 55.9 per cent were males and 44.1 per cent females.

Particular emphasis is placed upon an analysis of the characteristics of first admissions—persons who have never before been in any institution for tuberculous diseases. First admissions are considered the best indexes of the incidence of the disease because they more nearly indicate the onset, and at what age, in which sex, in which na-

TABLE II

County from Which Patients Were Admitted	Pulmonary First Admissions			
		Percentage Distribution *		
	Number	Minimal	Mod. Advanced	Far Advanced
Total—New Jersey—	2,200	18.7	40.7	40.6
Atlantic	89	(25.8)	(36.0)	(38.2)
Bergen	215	17.7	45.1	37.2
Burlington	60	(35.0)	(18.3)	(46.7)
Camden	207	15.5	46.4	38.1
Cumberland	41	(31.7)	(36.6)	(31.7)
Essex	484	18.6	38.6	42.8
Hudson	220	17.7	51.3	31.0
Mercer	122	17.2	42.6	40.2
Middlesex	114	8.0	43.8	48.2
Monmouth	102	17.6	35.3	47.1
Morris	58	(19.0)	(36.2)	(44.8)
Passaic	158	22.2	39.2	38.6
Somerset	40	(12.5)	(40.0)	(47.5)
Union	181	17.1	35.9	47.0
Other Counties †	109	23.9	39.4	36.7

* Counties having less than 25 pulmonary first admissions are lumped together since the numbers are too small for calculating reliable percentages. The figures in parentheses are based on admissions between 25 and 100 and are somewhat less significant as indexes than the other figures.

† Cape May 12, Gloucester 22, Hunterdon 13, Ocean 19, Salem 15, Sussex 10, Warren 13, and out of state 5.

tionality the disease most frequently occurs; they indicate to some extent certain social and economic problems growing out of the disease, and point to the particular phases of preventive work that need to be stressed and the groups in which the work should be done.

Table II indicates the condition of 2,200 pulmonary cases entering sanatoriums for the first time.

TABLE III

First Admissions to All Sanatoriums

Age Group	Number			Percentage Distribution		
	Total	Male	Female	Total	Male	Female
All age groups	2,556	1,370	1,186	100.0	100.0	100.0
Under 5 yrs.	23	13	10	0.8	0.9	0.8
5–9	152	82	70	6.0	6.0	5.9
10–14	189	84	105	7.4	6.1	8.8
15–19	300	126	174	11.7	9.2	14.7
20–24	396	167	229	15.5	12.2	19.3
25–29	372	158	214	14.6	11.5	18.1
30–34	260	133	127	10.1	9.7	10.7
35–39	226	142	84	8.9	10.4	7.1
40–44	209	146	63	8.2	10.7	5.3
45–49	149	118	31	5.8	8.6	2.6
50–54	108	78	30	4.2	5.7	2.5
55–59	79	58	21	3.1	4.2	1.8
60–64	40	28	12	1.6	2.0	1.0
65 and over	52	36	16	2.0	2.7	1.4
Not stated	1	1	—	0.1	0.1	0.0

Of the total of 2,200 first admissions suffering from pulmonary tuberculosis only 18.7 per cent were received in the minimal stage, 40.7 per cent were in the moderately advanced, and 40.6 per cent in the far advanced stages. The goal should be to treat all cases in the minimal stage when recovery is particularly certain, so that the moderately and far advanced stages will not be reached and will not as now be sources of infection in the community. Therefore any county showing a large proportion of minimal and a small proportion of far advanced cases entering sanatoriums usually has good clinical service, a good follow-up of contact cases, and a good educational program that has been carried on over a period of years.

AGES OF FIRST ADMISSIONS

Forty-two per cent of first admissions were between 15 and 29 years old; 12 per cent between 15 and 19; 15.5 per cent between 20 and 24; and 14.6 per cent between 25 and 29.

Table III shows considerable age differences between the males and the females; 22 per cent of the males as against 30 per cent of the females entering sanatoriums being less than 20 years old. In the age group 20–34 about 24 per cent were males while more than

37 per cent were females. Only after 34 years is there a proportionally larger number of admissions among males than females.

The fact that 42 per cent of the patients entering New Jersey sanatoriums were between the ages of 15 and 29 calls for decided action on the part of all tuberculosis and health agencies. For those young people to be hospitalized when they are finishing their education and beginning business or professional careers means a great economic waste to the community and state as well as a serious handicap in the

form of the disease or because they, who especially need help in education, are not finding adequate facilities for the attention they should have. For the sake of community health, therefore, the problem of tuberculosis and the negro must be met as effectively as possible and the negro must be given all the safeguards that science can command.

MARITAL CONDITION OF FIRST ADMISSIONS

Of 2,117 first admissions over 16 years of age 38.4 per cent were single, 53.8 per cent married and 7.7 per cent widowed or divorced. Such a large proportion of married patients is an indication of the

seriousness of the economic problem involved. During the hospitalization of these cases, most of which are in the moderately advanced or far advanced stages when longer periods of care are necessary, the family is either without a wage earner or without someone to maintain the home. The family economic and social obligations are responsible also for the fact that a large number of the patients remain too short a time in the sanatorium to receive adequate treatment.

Some of the sanatoriums with active social outlooks and some tu-

during the interval.

CONDITION ON DISCHARGE

Twenty-seven per cent of the 2,136 patients discharged from state and county sanatoriums during the year ending June 30, 1929, were quiescent, apparently arrested or arrested; 48 per cent were improved; 23 per cent unimproved; and 2 per cent non-tuberculous and under observation.

There is no better argument for the early diagnosis and treatment of pulmonary tuberculosis than the figures in Table IV, which show

37 per cent were females. Only after 34 years is there a proportionally larger number of admissions among males than females.

The fact that 42 per cent of the patients entering New Jersey sanatoriums were between the ages of 15 and 29 calls for decided action on the part of all tuberculosis and health agencies. For those young people to be hospitalized when they are finishing their education and beginning business or professional careers means a great economic waste to the community and state as well as a serious handicap in their personal development. The fact that 15 per cent of females entered between the ages of 15 and 19 indicates the great need for health education among girls of high school age. That the high admission rate among females rises far above the males in the 15 to 29 age group and then falls off rapidly calls for action along different lines. The male admission rate remaining consistently high from 20 to 44 years of age emphasizes the relation between industry and tuberculosis and suggests that the example of organizations which are providing health examinations and education among their employees should be followed extensively.

COLOR OF FIRST ADMISSIONS

In New Jersey the case rate for tuberculosis is approximately four times greater among the colored than among the white; the death rate is likewise four times greater. Although the death rate for whites is decreasing rapidly, that for colored is on the upward grade. Eleven per cent of first admissions to the state and county sanatoriums are negroes although they constitute only about 4 per cent of the population. Arresting is the fact that one-tenth of all the living cases of tuberculosis on record by the State Board of Health are of negroes. That 20 per cent of the deaths from tuberculosis are among negroes reveals a still more serious condition. It is evident that many more cases proportionately occur among the negroes and that a much larger proportion prove fatal, perhaps because they contract a more virulent form of the disease or because they, who especially need hospitalization, are not finding adequate facilities for the attention they should have. For the sake of community health, therefore, the problem of tuberculosis and the negro must be met as effectively as possible and the negro must be given all the safeguards that science can command.

MARITAL CONDITION OF FIRST ADMISSIONS

Of 2,117 first admissions over 16 years of age 38.4 per cent were single, 53.8 per cent married and 7.7 per cent widowed or divorced. Such a large proportion of married patients is an indication of the

seriousness of the economic problem involved. During the hospitalization of these cases, most of which are in the moderately advanced or far advanced stages when longer periods of care are necessary, the family is either without a wage earner or without someone to maintain the home. The family economic and social obligations are responsible too for the fact that a large number of the patients remain too short a time in the sanatorium to receive adequate treatment.

Some of the sanatoriums with active social outlooks and some tuberculosis associations endeavor to procure financial assistance for the families of patients in order that the latter may have the freedom from worry and peace of mind that will permit their taking time for recovery. The complete relaxation necessary for cure is impossible when the patient is "harassed by worries of home, depressed by prospects for the future, fidgety for want of something to occupy the mind and hands, restless from long waiting, and impatient to have done with the tedium of institutional régime."

READMISSIONS

Twenty persons entered tuberculosis institutions for the second, third or fourth time for every 100 entering for the first time. Readmissions are those who have previously been under treatment in some hospital for tuberculous diseases, except those few transferred directly from another institution for tuberculous diseases in New Jersey.

Of 467 readmissions with pulmonary tuberculosis, more than half were far advanced as compared to the 40 per cent for first admissions, and 9 per cent had minimal tuberculosis as contrasted with 19 per cent of the first admissions. This indicates need for a more careful analysis of the readmitted cases, covering their condition on discharge after the first admission, the reason for leaving the sanatorium (especially against the physician's advice), the length of time between discharge and readmission, the extent to which clinical follow-up service was used and the physical, industrial and social life of the patient during the interval.

CONDITION ON DISCHARGE

Twenty-seven per cent of the 2,136 patients discharged from state and county sanatoriums during the year ending June 30, 1929, were quiescent, apparently arrested or arrested; 48 per cent were improved; 23 per cent unimproved; and 2 per cent non-tuberculous and under observation.

There is no better argument for the early diagnosis and treatment of pulmonary tuberculosis than the figures in Table IV, which show

TABLE IV

Condition on Admission to All Sanatoriums	Total Discharged	Percentage Discharged as Arrested	App. Arrested	Quiescent	Improved	Unimproved	Non-tuberculous	Observation
All Conditions	2,136	4.3	11.3	11.6	48.4	22.5	1.7	0.2
Pulmonary								
Minimal	433	11.5	21.9	17.6	41.4	7.6	—	—
Mod. Advanced	848	4.0	13.3	14.1	46.7	21.9	—	—
Far Advanced	480	1.0	4.6	10.2	38.7	45.5	—	—
Non-Pulmonary	20	15.0	5.0	5.0	50.0	25.0	—	—
Non-Tuberculous	35	—	—	—	—	—	100.0	—
Hilum	215	0.4	5.1	1.4	79.6	13.5	—	—
Preventorium	99	—	1.0	—	92.9	6.1	—	—
Not Diagnosed	4	—	—	—	—	100.0	—	—
Observation	2	—	—	—	—	—	—	100.0

as arrested, apparently arrested, or quiescent 51 per cent of those discharged who entered with minimal tuberculosis as contrasted with 31 per cent with moderately advanced tuberculosis, and only 16 per cent with far advanced tuberculosis. Again contrast the 8 per cent of the cases minimal on admission discharged as unimproved with 46 per cent of the far advanced cases discharged as unimproved.

LENGTH OF STAY OF PATIENTS DISCHARGED DURING THE YEAR

It is significant to note that of the 2,136 patients leaving sanatoriums almost 40 per cent stayed less than 3 months. Of those who entered with pulmonary tuberculosis 39 per cent remained less than 3 months, 16 per cent less than 1 month, 12 per cent between 1 and 2 months, and 11 per cent between 2 and 3 months.

Patients staying less than 3 months include 46 per cent of the discharges entering with far advanced disease, 34 per cent with moderately advanced, and 39 per cent with the minimal, which latter

TABLE V

Patients Discharged Alive from All Sanatoriums

Condition on Admission	Number	Percentage Discharged After Treatment of: Less Than 1 Mo.	1 Mo. and Less Than 2	2 Mos. and Less Than 3	3 Mos. and Less Than 6	6 Mos. and Less Than 1 Yr.	1 Year and Less Than 2	2 Yrs. and Over
All Conditions	2,136	15.7	12.3	10.9	23.0	24.6	10.5	3.0
Pulmonary								
Minimal	433	10.8	14.3	13.9	26.5	24.1	8.0	2.4
Mod. Advanced	848	13.9	10.3	9.7	23.4	27.9	12.6	2.2
Far Advanced	480	21.4	14.2	10.2	18.7	20.0	10.0	5.5
Non-Pulmonary	20	15.0	20.0	20.0	5.0	15.0	10.0	15.0
Non-Tuberculous	35	65.7	5.7	14.3	2.8	5.7	5.8	—
Hilum	215	13.0	10.7	11.6	26.0	24.7	10.2	3.8
Preventorium	99	9.0	16.2	8.1	29.3	30.3	7.1	—
Not Diagnosed and Observation	6	83.3	—	—	—	—	16.7	—

group would be expected to be much larger than the other two (Table V).

That the condition of the patient on discharge is closely related to his time in the sanatorium is shown in Table VI. Those with a better condition on discharge are those with a longer period of hospitalization. Thirteen per cent of those discharged as arrested, apparently arrested, or quiescent stayed less than 3 months as contrasted with 65 per cent discharged as unimproved staying less than 3 months. Twenty-one per cent of those discharged as unimproved were actually under sanatorium care less than 1 week. The 26 per cent far advanced cases who were in a sanatorium over 3 months and less than 1 year were probably so far advanced on admission that they needed long periods of hospital care or had delayed treatment so long that improvement was difficult or impossible.

TABLE VI

Patients Discharged Alive from All Sanatoriums

Condition on Discharge	Number	Percentage Discharged After Treatment of: Less Than 1 Mo.	1 Mo. and Less Than 2	2 Mos. and Less Than 3	3 Mos. and Less Than 6	6 Mos. and Less Than 1 Yr.	1 Year and Less Than 2	2 Yrs. and Over
All Conditions	2,136	15.7	12.3	10.9	23.0	24.6	10.5	3.0
Arrested	93	—	4.3	8.6	29.0	30.1	21.5	6.5
Apparently Arrested	243	0.4	2.0	4.5	28.0	44.1	16.0	5.0
Quiescent	249	1.2	5.6	11.6	25.7	35.8	13.6	6.5
Improved	1,034	8.2	17.8	13.8	25.5	23.3	9.0	2.4
Unimproved	480	46.4	11.3	7.7	14.1	11.7	7.3	1.5
Not Tuberculous and Observation	37	64.9	5.4	13.5	2.7	5.4	8.1	—

RELATION OF LENGTH OF STAY TO RECOVERY

Tuberculous patients even in the earliest stages of disease cannot expect to be cured in a few weeks. One of the major problems in the treatment of tuberculosis is to induce the patient to continue sanatorium treatment for a sufficiently long time. There is need for more educational work against impatience in recovery time and for the importance of early and continued treatment. It is not fair to the institutions to ask them to begin treatments which they are not given an opportunity to finish; neither is it fair for an uncoöperative patient to occupy a bed which would prove a real cure to a patient who is prepared to meet the instructions of the physicians in every way. Doctors, public health nurses, clinics and tuberculosis leagues should impress upon the patients before they enter the sanatorium the necessity of planning to remain until discharged by the superintendent in order that they may be restored to health that will have every chance of being permanent.

A social service worker of the sanatorium is a valuable asset in this field since, as the connecting link between the patient in the institution and the family at home, she may secure the coöperation of the patient's family in inducing him to remain, may quiet his restlessness by reports of the economic and social condition of his family, make arrangements for the financial care of the family during the absence of the bread winner, and be helpful in arranging proper home conditions to prevent tuberculosis in other members of the family, and to further the cure of the patient when discharged.

DEATH RATE IN SANATORIUMS

In the state and county sanatoriums 727 deaths occurred during the year ending June 30, 1929—a death rate of 15.3 per 100 under treatment. In Glen Gardner, the State Sanatorium, which takes only milder cases among whom are a number of children, has a death rate of 1.9 per 100 while in the county institutions the death rates range from 8.1 per 100 to 36.6.

The death rates of the institutions are modified by the proportion of far advanced cases admitted, the turnover of patients (that is, whether the population consists of many patients who stay short periods or fewer patients who stay for longer periods), and the policy of the institutions in sending to their homes those whose days are numbered and who beg to spend their last hours in familiar surroundings.

Eighty per cent of the 727 deaths in state and county institutions during the year occurred among patients entering with far advanced tuberculosis, 18 per cent among those entering in the moderately advanced stage, and less than 1 per cent among those entering in the minimal stage. These figures are conclusive evidence of the value of early diagnosis and treatment to prevent fatality.

Table VII shows that hospitalization of tuberculous patients is frequently sought too late, that even far advanced cases stay at home until the last minute.

TABLE VII

Condition on Admission	Total Deaths	Length of Sanatorium Stay Before Death: Less Than 7 Days	7–13 Days	14–29 Days	1 Mo. and Less Than 2	2 Mos. and Less Than 3	3 Mos. and Less Than 6	6 Mos. and Less Than 1 Yr.	1 Year and Less Than 2	2 Yrs. and Over
All Conditions	711	61	45	86	123	62	134	101	59	40
Pulmonary										
Minimal	6	—	—	1	2	2	—	—	1	—
Mod. Advanced	120	3	1	5	14	11	23	27	27	9
Far Advanced	577	57	43	78	106	49	109	74	31	30
Non-Pulmonary	5	1	—	—	1	—	2	—	—	1
Non-Tuberculous	3	—	1	2	—	—	—	—	—	—

Ten per cent of the deaths in far advanced cases occurred before the patients had been in the sanatorium 1 week, 31 per cent (178 deaths) before 1 month, and 49 per cent (284) before 2 months. Deaths due to far advanced tuberculosis on admission occurred in 442 cases of the 577 before 6 months had passed. Of the 120 deaths in cases admitted to county sanatoriums as moderately advanced, 7.5 per cent occurred in the first month, 11.7 per cent in the second month and 9.2 per cent in the third month.

CONCLUSIONS

The joint efforts of many institutions and organizations in New Jersey have contributed toward a most encouraging decline in the tuberculosis death rate—a 58 per cent drop—from 179.5 per 100,000 in 1904 to 74.9 in 1929. State and county sanatoriums, state and county tuberculosis leagues, general hospitals, clinics, schools, medical and nursing services, the State Board of Health and the State Department of Institutions and Agencies working together in a common cause have contributed to the declining tuberculosis death rate. The cumulative results show that the campaign of the public health movement against tuberculosis has been effectively organized and carried out.

From the standpoint of the tuberculosis sanatorium the problems still to be solved arise from the fact that far too many patients are entering when the disease has reached a stage at which the possibilities for recovery are less certain; that the negroes are not being adequately hospitalized although they need care more than the white race; that patients are not remaining in the sanatorium a sufficient length of time to effect a cure.

As Commissioner William J. Ellis has so well said:

"Sanatoriums must seek means of keeping the patients until they can return to the community upon the physician's advice in such a condition that they will not be a source of contagion, and social workers of the sanatoriums or the tuberculosis leagues must seek to alleviate the economic and social reasons that make the patients return to their homes too soon.

"The problem of tuberculosis will remain active until the laity have learned to seek medical advice upon recognition of the symptoms and the physicians have been awakened to the importance of detecting and diagnosing tuberculosis in its earliest stages when these early cases may be hospitalized to insure their complete recovery and to safeguard the health of the community against infection from active advanced cases."

NOTE: Appreciation is expressed to the sanatorium superintendents and their staffs for their faithfulness in furnishing the figures upon which this study is based, to the tuberculosis workers in the communities, to the New Jersey Tuberculosis League, and the National Tuberculosis Association, for their valuable advice in the compilation and analysis of the figures used.

EDITORIAL SECTION

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MEXICAN LEADERSHIP IN PUBLIC HEALTH

NOT many months have elapsed since the Seventh Latin American Medical Congress met in Mexico City. It is, therefore, fitting that, before the end of the year, the American Public Health Association should round out its sessions at Fort Worth by a post-convention tour to this historic capital of the Aztecs, thus bringing new proof of the important rôle filled by the Republic south of the Rio Grande as a connecting link between the two great civilizations sharing the Western Continent.

The interest in Mexico in the success of the American Public Health Association is not a recent development. After the United States and Canada, Mexico was the first country to accept, as far back as 1889, the invitation to join in the work of the Association. Incidentally, this very acceptance served to emphasize the truly American character of the organization. The importance of Mexico's position in the Association from the beginning is shown by the fact that as early as 1892 the American Public Health Association had already met in Mexico City and one of her most illustrious sons, the lamented Licéaga, presided, in 1896, over the destinies of the Association whose meetings he attended as the representative of his country from 1893 to 1913.

Those fond of dwelling on the past may find much to hold their attention in Mexico. The Mayan relics have just begun to disclose the achievements of that wonderful race and its progress, even in medical subjects. Many drugs in present use have come to us from the

old inhabitants of the Anahuac plateau. Cortez had barely taken off his spurs after the *Conquista,* when he was already laying the corner-stone of a hospital, the third to be built in the Americas. This was probably about 1523, and some hundred and forty years before the first such institution for the sick was built in the English Colonies. While Mexico was not the first American country to organize a medical school, such priority belonging to Santo Domingo or Peru, medical teaching began there before 1550, and the first medical book printed in the New World (1570) was certainly that of Bravo on the dreaded "tabardillo," or typhus fever. It may be well to recall here that, in Mexico City, Anderson and Goldberger, more than three centuries afterwards, carried out their important investigations concerning the nature of this disease.

Rafael Silva, M.D.

Practical sanitarians will, however, be more interested in the latest Mexican contributions to public health work. Her pioneer sanitarian, Licéaga, already, in 1893, had published the basis for a more or less uniform Pan-American sanitary policy, and Mexico was probably the first country in the world (1894) to incorporate in her maritime quarantine regulations the resolutions adopted at the international sanitary conventions. Mexico was also the cradle of the Pan-American Sanitary Bureau, and to the wisdom of her statesmen and her physicians the Pan-American Sanitary Conventions owe much of their permanence and success.

With such a history, it was, therefore, to be expected that as soon as the troublous days of the Revolution were followed by quieter times, her statesmen and sanitarians should take up anew the deferred health tasks which Licéaga was obliged to leave uncompleted.

Few countries can boast of a more comprehensive program of work than that outlined in the reports of the last two energetic heads of the Mexican National Department of Health, and in the present Director, Dr. Rafael Silva, President Ortiz Rubio has given Mexico, as the head

of her Department of Health, a physician of international reputation, full of honors in his own country, and a man of radiant personality.

Before 1917, public health work in Mexico was entirely in the hands of local authorities, with the exception of the Federal District and the Quarantine Service, and there was lack of coördination. In 1917, the old Public Health Council, with mostly advisory functions, was transformed into a Department of Public Health, and its powers were greatly strengthened and broadened.

From 1920 to 1924 the ground was prepared for further developments by means of a campaign of public health education. This appeal to the people to coöperate in sanitary improvement was an entirely new feature in Mexico. As part of that campaign, the training of public health nurses and the establishment of a training school for physicians and nurses in public health work became an accomplished fact. At about the same time, with the aid of the Rockefeller Foundation, the campaign against yellow fever was carried to a successful termination. When President Calles took the reins of power, federal public health delegates were stationed in every state in the Republic; a compulsory vaccination law was issued and enforced; a hookworm campaign was begun on a large scale; venereal dispensaries were created; and a number of much needed public health regulations were promulgated. The old bacteriological laboratory was enlarged and developed into the present and up-to-date Institute of Hygiene.

The activities of the department embraced successively the various phases of health protection—infant mortality, communicable disease control, industrial hygiene, medical inspection of schools, railroad sanitation, and problems connected with alcoholism and the sanitation of milk and other foods. A series of censuses have been taken to determine the prevalence of such diseases as leprosy, cancer and pinto. An extensive program has been developed for the struggle against two of the worst scourges of the country: tuberculosis and malaria. Of unusual interest is the work of the new coöperative sanitary units at Veracruz and Puerto Mexico.

The hearty support rendered by the National Government to the Department of Public Health is well illustrated in the splendid new building housing the department in Mexico City, and in the funds made available for sanitary work. Under the leadership of a series of progressive men, Mexico is again assuming the rank belonging to her in the field of public health.

In conclusion, it may not be amiss to mention the fact that there are already many Pan-American congresses, Pan-American societies of medicine, of child welfare, societies for combating tuberculosis,

and others of similar import. The approaching visit to Mexico may well be used to call attention to the truly international nature of the American Public Health Association, the only organization of its kind in the Western Hemisphere.

THE SHIP DOCTOR AND PUBLIC HEALTH

THE statement that the ship's doctor has been a term of opprobrium for decades is frequently heard. Such a pessimistic attitude is not in accord with the opinion of those who travel much and have received generous, sympathetic and good care on many ships.

It may be quite apparent that some physicians on ships have been selected for most obscure reasons; that their qualifications both personal and professional are not of the standard one would insist on ashore; that their training or actions have not been the subject of inquiry from fellow physicians, such as the chief surgeon of the passenger line, but from the captains or other officers of their ships; and finally that the dignity and responsibility of their position has been wilfully ignored by shipping companies in low salaries and lax discipline. In other words, many companies follow the law to the letter in that a physician must be present on passenger ships, no matter who or how obtained.

There is, however, another side to the question—Many ship surgeons render excellent service; they are underpaid and many times not paid for services of a definitely high character; they are the health officers of the ships, and as such, of their country, and therefore have usually no continuity of service; they are the buffers to their companies in lawsuits due to accidents and other things; their living quarters and hospital facilities are generally unsatisfactory; and they have no assistants, but work long hard hours under circumstances that would make the present-day hospital interne quiver with indignation. In other words, the honest and qualified ship surgeon is a self-sacrificing and generous man, representing in one person the specialist in medicine, surgery, obstetrics, public health—and indeed embalming—at a specified compensation comparable to most menial types of work. Moreover, the ship's doctor should be the family doctor of the highest traditions and an important part of the public health service.

The pessimism of many may be eventually changed. In fact, one American company has taken steps to place its medical service on the highest type of basis. It has appointed a chief surgeon and selected the members of the staff of one of the universities as advisers in public health and tropical medicine. This momentous advance in medicine and public health service afloat will be watched with interest, and its

intrinsic value to the shipping company, if in only prestige, very great. The recent meningitis outbreak in Filipinos on ships from the Orient fully demonstrated the need for such advisory preventive and educational health measures.

MOUTH SPRAY AND PUERPERAL FEVER

PUERPERAL fever is still one of the black spots on our preventive program. In spite of the introduction of antiseptics of all sorts, the rate is still high. In England it is said not to have fallen during the past twenty years. "Despite the improvements in surgical technic and the advance of antisepsis, the maternal mortality rate has but little altered during the last decade, and sepsis is still responsible for approximately half the deaths in childbirth."[1] America makes a bad showing in the list of nations on this score.

Obstetricians are necessarily deeply concerned, and many are avoiding the usual examinations during labor in the hope of bettering conditions. The infection occurs more frequently in hospitals than in private practice, in spite of the conveniences and care which institutional treatment provides.

A number of organisms have been incriminated—sometimes alone and sometimes in combination—but the hemolytic streptococcus still holds first place. It will be remembered that Pasteur, in 1880, was the first to demonstrate streptococci in a case of puerperal infection, showing at that time what is now known to be the fact, that puerperal fever is in reality a wound infection. It is true that the possibility of endogenous infection is involved, and there is some strong evidence for it. However, the original idea of infection from the outside has dominated medicine since the days of Semmelweis, in 1843, and we believe that the great majority of observers still hold that puerperal fever is a wound infection, the offending organism gaining access from the outside.

As a matter of course, the source of the infection has been sought long and earnestly. In some cases, its origin is obvious, but in many, not. Cultures from healthy women during pregnancy indicate that the presence of hemolytic streptococci is comparatively rare, and autoinfection is considered by many to be uncommon, some even holding that it is inappreciable.

Infection by "spraying" from the throats of contacts has been suspected in this and other countries. A recent paper[2] discusses the matter in a convincing fashion, giving the histories of two outbreaks in two hospitals, one of which is classed as to some extent a "special

hospital," in the sense that no emergency cases are admitted, and the other a training school for midwives. In both, every antiseptic precaution was taken, except that no masks were worn.

In the first hospital, following one infection, a bacteriological examination showed hemolytic streptococci in the noses and throats of 6 out of 50 apparently healthy persons, 3 of whom were directly concerned in the delivery. Masks were then insisted upon during delivery, and later were extended to all postpartum nursing, with apparently good results.

In the second hospital, the outbreak began with a streptococcal infection in a "district" case. One pupil appears to have been the innocent cause of the infection of 5 "district" cases and also of her fellow nurses in the hospital. While the health of the nursing staff was excellent up to a certain date, two days after the first septic case in the hospital a nurse developed an infection of a finger, and within a fortnight 5 other nurses were laid up with septic fingers or sore throats, while 2 developed symptoms suggestive of scarlet fever, though this diagnosis was not made. In 12 remaining nurses examined for hemolytic streptococci, 6 were found to be positive. Masks were then ordered for all deliveries and postpartum treatments, and appear to have been the agents which cut off the source of infection.

The author of the paper mentioned gives a fair consideration to all aspects of the case, and draws the very conservative conclusion that enough evidence was collected to justify full investigation of throat carriers.

While the evidence is not conclusive, it is believed that sufficiently strong evidence has been brought forward to make the possible importance of spraying from streptococcal throats as the source of infection in puerperal infections a matter for careful investigation. Anything which offers hope of reducing the maternal mortality deserves the most careful consideration and study.

REFERENCES

1. *Ann. Pickett-Thompson Research Lab.*, V: 329, 1929.
2. *Brit. M. J.*, Mar. 22, 1930, p. 533.

PRELIMINARY PROGRAM OF THE FIFTY-NINTH ANNUAL MEETING AMERICAN PUBLIC HEALTH ASSOCIATION

Fort Worth, Texas, October 27–30, 1930

DELEGATES are urged to consult the Final Program, at the meeting, for information as to the exact time and place of sessions. The General Sessions and all other meetings will be held in the Hotel Texas. Morning sessions will be at 9:30; luncheon sessions at 12:30; afternoon sessions at 2:30; dinner sessions at 6:30; and evening sessions at 8:00.

General Sessions

First Session—Monday Evening

Addresses of Welcome:

The Honorable William Bryce, Mayor, City of Fort Worth.
Walter B. Scott, President, Fort Worth Chamber of Commerce.
The Honorable Dan Moody, Governor of the State of Texas.
John W. Burns, M.D., President, Texas State Medical Association.
M. E. Gilmore, M.D., President, Tarrant County Medical Society.
H. K. Read, M.D., President, Texas Association of Sanitarians.

Address of the President of the American Public Health Association. A. J. Chesley, M.D., State Health Officer, St. Paul, Minn.

The Health Problem in Mexico. Rafael Silva, M.D., Chief of the Departamento de Salubridad Publica, Mexico City, Mex.

Reception and Dancing.

Second Session—Tuesday Evening

Reports of the Four Standing Committees of the Association:

Committee on Fellowship and Membership. *Chairman,* Sally Lucas Jean, New York, N. Y.

Committee on Meetings and Publications. *Chairman,* C. C. Young, D.P.H., State Department of Health Laboratories, Lansing, Mich.

Committee on Administrative Practice. *Chairman,* C.-E. A. Winslow, Dr.P.H., Yale University, New Haven, Conn.

A Study of Rural Health Work. A. W. Freeman, M.D., School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md., and E. L. Bishop, M.D., State Health Commissioner, Nashville, Tenn.

Seeing Cities through the Health Conservation Contest. Louis I. Dublin, Ph.D., Statistician, Metropolitan Life Insurance Company, New York, N. Y.

Committee on Research and Standards. *Chairman,* Abel Wolman, Chief Engineer, State Department of Health, Baltimore, Md.

Report **on the White House Conference.** WILLIAM F. SNOW, M.D., General Director, American Social Hygiene Association, New York, N. Y.

BARBECUE AND RODEO

Wednesday—4 P.M.

Third Session—Banquet—Thursday Evening

No Title. ARISTIDES AGRAMONTE, M.D., Professor of Bacteriology, University of Havana, Havana, Cuba.

The **Cost of Public Health as a Public Investment.** LOUIS I. DUBLIN, PH.D., Statistician, Metropolitan Life Insurance Company, New York, N. Y.

Dancing.

SPECIAL SESSIONS

SYMPOSIUM ON MENINGITIS

LABORATORY, EPIDEMIOLOGY AND HEALTH OFFICERS SECTIONS

Monday Afternoon

Epidemiological **Methods in the Control of Meningococcus Meningitis.** WILLIAM H. PICKETT, M.D., State Department of Health, Lansing, Mich.

Experience **of Meningitis Division of New York City Department** of Health (Clinical and Bacteriological). JOSEPHINE NEAL, M.D., New York, N. Y.

Practical **Problems in the Serum Therapy of Meningococcus Meningitis.** A. B. WADSWORTH, M.D., State Department of Health, Albany, N. Y.

Epidemiological **Study of 740 Cases and 376 Deaths from Meningococcus Meningitis in California.** W. M. DICKIE, M.D., Secretary, State Board of Health, Sacramento, Calif.

An Epidemiological **Study of 395 Cases of Meningococcus Meningitis.** M. R. FRENCH, M.D., Health Department, Milwaukee, Wis.

Control **Measures on Shipboard for Meningococcus Meningitis.** J. C. GEIGER, M.D., University of California Medical School, San Francisco, Calif.

Discussion of all papers.

INTER-RELATION OF THE HEALTH OFFICER AND GENERAL PRACTITIONER TO PREVENTIVE MEDICINE

Wednesday Morning

Addresses by:

SHIRLEY W. WYNNE, M.D., DR.P.H., Commissioner of Health, New York, N. Y.

GORDON BATES, M.D., General Secretary, Canadian Social Hygiene Council, Toronto, Ont.

W. C. C. COLE, M.D., Children's Clinic, Detroit, Mich.

RALPH REYNOLDS, M.D., Assistant in Medicine, Stanford University, San Francisco, Calif.

W. H. Ross, M.D., President, New York State Medical Society, Brentwood, N. Y.

GEORGE C. RUHLAND, M.D., Commissioner of Health, Syracuse, N. Y.

PSITTACOSIS

HEALTH OFFICERS AND LABORATORY SECTIONS

Thursday Morning

History and Distribution. GEORGE W. MCCOY, M.D., Director National Institute of Health, Washington, D. C.

Etiology. CHARLES KRUMWIEDE, M.D., Department of Health, New York, N. Y.

Pathology. RALPH DOUGALL LILLIE, M.D., National Institute of Health, Washington, D. C.

Discussion. R. H. RILEY, M.D., Director, State Department of Health, Baltimore, Md.

JOINT SESSIONS

FOOD, DRUGS AND NUTRITION AND CHILD HYGIENE SECTIONS

Monday Morning

Local and General Aspects of the Dental and Nutritional Problems in the Large City. HARRIS R. C. WILSON, D.D.S., Director of Mouth Hygiene, Board of Education, Cleveland, O.

Precise Evaluation of Light Therapy in Experimental Rickets. JOHN W. M. BUNKER, PH.D., Professor of Biochemistry and Physiology, and ROBERT S. HARRIS, Research Associate, Massachusetts Institute of Technology, Cambridge, Mass. (*Stereopticon Illustration.*)

Fatigue. No author.

Focal Infection. WESTON A. PRICE, D.D.S., Cleveland, O.

Soft Curded Milk: Nature's Food for Infants. R. L. HILL, M.D., Human Nutritionist, Utah State Agricultural College, Logan, Utah.

Comparative Dietary Studies of Mexican, Negro and White Children of Nursery School Age. JET C. WINTERS, PH.D., Director Nutrition Research, University of Texas, Austin, Tex.

CHILD HYGIENE, PUBLIC HEALTH EDUCATION AND PUBLIC HEALTH NURSING SECTIONS

Tuesday Afternoon

What Do **Children Know about Health at Various Ages?** DON W. GUDAKUNST, M.D., Director of School Health Service, Department of Health, Detroit, Mich.

Correlation **Between the School's Medical Service and the Teaching of Health.** No author.

Infantile **Health Centers in the Capital of the Republic.** MARIO TORROELLA, M.D., Director of Child Hygiene, Departamento de Salubridad Publica, Mexico City, Mex.

The Value **of Psychiatric Service in a Visiting Nurse Program.** RUTH GILBERT, R.N., Supervisor Mental Hygiene, Department of Health, Syracuse, N. Y.

Where and **How Have the Best Plans Been Perfected for Developing a State-wide Program of Immunization and What Part Has the Public Health Nurse Taken?** MARION SHEAHAN, R.N., Assistant Director, Division of Public Health Nursing, State Board of Health, Albany, N. Y.

PUBLIC HEALTH ENGINEERING AND FOOD, DRUGS AND NUTRITION SECTIONS

Thursday Morning

Progress in the **Enforcement of the New York State Milk Code.** C. A. HOLMQUIST, Director, Division of Sanitation, and W. D. TIEDEMAN, Chief, Bureau of Milk Sanitation, State Department of Health, Albany, N. Y.

The Milk **Control Program in Texas.** C. M. ROSSER, M.D., State Board of Health, Dallas, Tex., and FRED B. GREEN, V.M.D., Chief Milk Supervisor, State Board of Health, Austin, Tex.

Effect of **Heat on Food Value of Milk.** M. J. PRUCHA, and J. M. BRANNON, PH.D., University of Illinois, Urbana, Ill.

Present **Status of Acidophilus Milk.** WILLIAM D. FROST, DR.P.H., University of Wisconsin, Madison, Wis.; T. H. BUTTERWORTH and STEWART M. FARR, Laboratories of Brook Hill Farms, Genesee, Wis.

Relative **Corrosiveness of Equipment by Dairy Products.** J. H. SHRADER, PH.D., Director, Research Laboratory, National Dairy Products Corporation, Baltimore, Md.

Preliminary **Report of Studies on Transformation of the Intestinal Flora Through the Feeding of Unfermented Acidophilus Milk.** R. P. MYERS, PH.D., M. E. PARKER and LILLIAN W. CONN, Research Laboratory, National Dairy Products Corporation, Baltimore, Md.

PUBLIC HEALTH ENGINEERING AND INDUSTRIAL HYGIENE SECTIONS

Thursday Afternoon

JOHN F. SKINNER, *Chairman,* Public Health Engineering Section, *Presiding.*

SYMPOSIUM ON ATMOSPHERIC POLLUTION

Introduction. ANTHONY J. LANZA, M.D., *Chairman,* Industrial Hygiene Section, Assistant Medical Director, The Metropolitan Life Insurance Company, New York, N. Y.

Engineering Phases of Industrial Hygiene. L. R. THOMPSON, M.D., Surgeon in charge, Office of Industrial Hygiene and Sanitation, U. S. Public Health Service, Washington, D. C.

The Medical Aspects of Atmospheric Pollution. T. C. TERRELL, M.D., Terrell Laboratories, Fort Worth, Tex.

The Amelioration of Atmospheric Pollution. HOWARD W. GREEN, Sanitary Engineer, Cleveland Health Council, Cleveland, O.

The Public Health Aspects of Atmospheric Pollution. C. A. SAPPINGTON, M.D., Director, Division of Industrial Health, National Safety Council, Chicago, Ill.

Discussion of all papers.

SECTION SESSIONS

LABORATORY

First Session—Wednesday Morning

Report of the Committee on Standard Methods. *Chairman,* E. O. JORDAN, PH.D., University of Chicago, Chicago, Ill.

Laboratory Methods and Their Utilization in Milk Control. ROBERT S. BREED, PH.D., State Agricultural Experiment Station, Geneva, N. Y.

The Gordon Precipitation Test for Smallpox. L. C. HAVENS, M.D., Director of Laboratories, State Board of Health, Montgomery, Ala.

The Results of Serological and Cultural Examination of Three Thousand Specimens of Blood. THOMAS F. SELLERS, Director, State Board of Health Laboratories, Atlanta, Ga.

Experimental Typhoid Carriers. A Study of Factors Affecting the Periodic Shedding of Organisms. LLOYD ARNOLD, M.D., Professor of Bacteriology, University of Illinois, Chicago, Ill., and THOMAS G. HULL, PH.D., Director, State Board of Health Laboratory, Springfield, Ill.

Standardization of the Wassermann Reaction. PEDRO PEREZ GROVAS, M.D., Departamento de Salubridad Publica, Mexico City, Mex.

Immunization of Dogs Against Rabies by the One Injection Method. H. W. SCHOENING, D.V.M., Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

The Lethal **Effects of Methyl Chloride on Laboratory Animals.** JOHN L. WHITE, M.D., FRED O. TONNEY, M.D., and PAUL P. SOMERS, Bureau of Laboratories and Research, Department of Health, Chicago, Ill.

Second Session—Thursday Afternoon

Report of the **Committee on Abstracts in the Journal.** *Chairman,* C. C. YOUNG, D.P.H., State Department of Health Laboratories, Lansing, Mich.

SYMPOSIUM ON UNDULANT FEVER

Identification **of Strains of Brucella Group of Organisms.** I. FOREST HUDDLESON, D.V.M., Michigan State College, East Lansing, Mich.

The **Effects of Pasteurization on B. Abortus in Milk.** CHARLES M. CARPENTER, PH.D., D.V.M., Albany Medical College, Albany, N. Y.

A Study **of the Epidemiology of Undulant Fever.** H. E. HASSELTINE, M.D., U. S. Public Health Service, Washington, D. C.

Agglutins **for B. Abortus in the Blood and Milk of Cows and the Use of the Agglutination Reaction in the Control of Certified Milk.** JOHN F. NORTON, PH.D., and L. R. PLESS, Department of Health, Detroit, Mich.

Public **Health Control of Infectious Abortion in Certified Milk.** K. F. MEYER, M.D., George Williams Hooper Foundation for Medical Research, University of California, San Francisco, Calif.

B. Abortus **in Certified Milk.** D. E. HASLEY, M.S., Detroit School of Medicine, Detroit, Mich.

HEALTH OFFICERS

First Session—Tuesday Morning

Public **Health and the City Manager.** O. E. CARR, City Manager, Fort Worth, Tex.

Mexican **Immigrants.** E. O. CHIMENE, M.D., City Health Department, Austin, Tex.

Texas-Mexico **Border Health Problems.** J. C. ANDERSON, M.D., State Health Officer, Austin, Tex.

Decrease **of Tuberculosis in Mexico.** SALVADOR BERMUDEZ, M.D., Departamento de Salubridad Publica, Mexico City, Mex.

Section Business.

Dinner Session—Tuesday Evening

The Health **Officer of the Past.** JAMES A. HAYNE, M.D., State Commissioner of Health, Columbia, S. C.

The Health **Officer of the Present.** No author.

The Health **Officer of the Future.** ARTHUR T. MCCORMACK, M.D., State Department of Health, Louisville, Ky.

VITAL STATISTICS

First Session—Monday Morning

Announcements.

Difficulties in Rural Registration Overcome Without Money. BUTLER TOOMBS, Director, Bureau of Vital Statistics, State Board of Health, Atlanta, Ga.

Report of the Committee to Aid Completion of the Registration Area. *Chairman,* LOUIS I. DUBLIN, PH.D., Statistican, Metropolitan Life Insurance Company, New York, N. Y.

Report of the Committee on Registration Affairs. T. F. MURPHY, M.D., *Acting Chairman,* Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C.

Physical Findings in New York City Continuation School Boys—An Element in the Vital Statistics of Adolescents. JEROME MEYERS, M.D., Department of Health, New York, N. Y.

Discussion. SELWYN D. COLLINS, PH.D., Associate Statistician, in Charge of the Office of Statistical Investigations, U. S. Public Health Service, Washington, D. C.

No Title. J. V. DEPORTE, PH.D., Director, Division of Vital Statistics, State Department of Health, Albany, N. Y.

Discussion. FREDERICK L. HOFFMAN, LL.D., Consulting Statistician, Prudential Insurance Company of America, Newark, N. J.

Second Session—Tuesday Morning

Section Business.

No Title. MANUEL MARTINEZ BAEZ, M.D., In charge of Propaganda and Education, Departamento de Salubridad Publica, Mexico City, Mex.

Report of the Committee on Accuracy of Certified Causes of Death and Its Relation to Mortality Statistics and the International List. *Chairman,* HAVEN EMERSON, M.D., Department of Public Health Administration, Columbia University, New York, N. Y.

Report of the Committee to Coöperate with the National Safety Council in Preparing Forms for Additional Information Regarding Accidents. *Chairman,* W. THURBER FALES, SC.D., State Registrar, State Board of Health, Montgomery, Ala.

The Accident Problem in Kansas. EARLE G. BROWN, M.D., Executive Health Officer, State Board of Health, Topeka, Kans.

Woman's Part in the Safety Campaign. GEORGE H. VAN BUREN, Supervisor, Statistical Bureau, Metropolitan Life Insurance Company, New York, N. Y.

Third Session—Thursday Morning

Completion of the **Registration Area.** LOUIS I. DUBLIN, PH.D., Statistician, Metropolitan Life Insurance Company, New York, N. Y.

Neonatal **Mortality as Affected by Mother's Age and Obstetrical** Care. ELBRIDGE SIBLEY, Statistician, State Department of Public Health, Nashville, Tenn.

Discussion. BLANCHE M. HAINES, M.D., Director, Maternity and Infancy Division, U. S. Children's Bureau, Washington, D. C.

Mortality **from Puerperal Septicemia in the United States During** Recent **Years.** GAIUS E. HARMON, M.D., Department of Hygiene and Bacteriology, School of Medicine, Western Reserve University, Cleveland, O.

Report of the **Committee on Proper Allocation of Records.** *Chairman,* J. V. DEPORTE, PH.D., Director, Division of Vital Statistics, State Department of Health, Albany, N. Y.

Report of the **Committee on Joint Causes of Death.** *Acting Chairman,* T. F. MURPHY, M.D., Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C.

Fourth Session—Thursday Afternoon

Hospital **Statistics.** E. H. LEWINSKI CORWIN, PH.D., Academy of Medicine, New York, N. Y.

Excess **Mortality from Non-respiratory Causes During Influenza** Epidemics. SELWYN D. COLLINS, PH.D., Associate Statistician, in Charge of the Office of Statistical Investigations, U. S. Public Health Service, Washington, D. C.

An Old **Life Table or Rate Survivorship Table for New York** City for the **Years 1801–05.** CHARLES BOLDUAN, M.D., Director of Health Education, Department of Health, New York, N. Y.

Report of the **Committee on Public Health Climatology.** *Chairman,* E. W. KOPF, Metropolitan Life Insurance Company, New York, N. Y.

No Title. LOWELL J. REED, PH.D., Department of Biometry and Vital Statistics, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

No Title. SHIRLEY W. WYNNE, M.D., DR.P.H., Commissioner of Health, New York, N. Y.

PUBLIC HEALTH ENGINEERING

First Session—Tuesday Morning

Waterborne **Typhoid Still a Menace.** ABEL WOLMAN, Chief Engineer, State Department of Health, Baltimore, Md., and ARTHUR E. GORMAN, Wallace & Tiernan Co., Inc., Newark, N. J.

The Effect **of Taste Elimination Treatments on the Bacterial Quality** of the **Water** (Report of the Committee on Water Supply). *Chairman,* JOHN R. BAYLIS, Filtration Chemist, Department of Public Works, Chicago, Ill.

SYMPOSIUM ON PUBLIC HEALTH ENGINEERING PROBLEMS IN THE SOUTHWEST

Sanitary Features of Irrigation Projects. JANE H. RIDER, Director State Laboratory, Tucson, Ariz.

Plan of Organization of a Federal Department of Drainage Works. JOAQUIN M. SEGURA, Sanitary Engineer, Departamento de Salubridad Publica, Mexico City, Mex.

Control of Cross-Connections in Texas Cities. W. N. DASHIELL, City Sanitary Engineer, Fort Worth, EDGAR WHEDBEE, City Water Department, Dallas, and J. A. SAULS, City Water Department, Houston, Tex.

Sanitary Control of Underground Water Supplies in Texas. CHESTER COHEN, State Department of Health, Austin, Tex.

Emergency Sanitary Measures Following a Flood Disaster. PAUL S. FOX, Chief, Division of Sanitary Engineering and Sanitation, Bureau of Public Health, Santa Fe, N. M.

Progress in Disaster Relief Preparedness Programs (Report of the Committee on Disaster Relief). *Chairman,* E. L. FILBY, Chief Engineer, State Board of Health, Jacksonville, Fla.

Second Session—Tuesday Afternoon

SYMPOSIUM ON MALARIA CONTROL

The Increase in the Malaria Incidence—a Challenge. JOHN A. FERRELL, M.D., Associate Director, International Health Division, Rockefeller Foundation, New York, N. Y.

Cost of Malaria Control. J. A. LEPRINCE, Senior Sanitary Engineer, U. S. Public Health Service, Memphis, Tenn.

Promoting Malaria Control Programs (Report of the Committee on Insects and Rodents). *Secretary,* G. H. HAZELHURST, Chief Sanitary Engineer, State Board of Health, Montgomery, Ala.

Screen and Mosquito Proofing as Elements in a Malaria Control Program. H. R. FULLERTON, C.E., Department of Public Health, Nashville, Tenn.

The Sanitary Significance of River Flood Control (Report of the Committee on Waterways Pollution). *Chairman,* ERNEST R. BOYCE, Chief Engineer, State Board of Health, Lawrence, Kans.

The Promotion of Environmental Sanitation (Report of the Committee on Environmental Sanitation). *Chairman,* V. M. EHLERS, Chief Engineer, State Department of Health, Austin, Tex.

Eliminating Health Hazards in Plumbing (Report of the Joint Committee on Plumbing). *Chairman,* JOEL I. CONNOLLY, Chief, Bureau of Sanitary Engineering, Department of Health, Chicago, Ill.

Recent Developments in Sewage Disposal (Report of the Committee on Sewage Disposal). *Chairman,* LANGDON PEARSE, Sanitary Engineer, The Sanitary District of Chicago, Chicago, Ill.

Significant Items on Pasteurization of Milk (Report of the Committee on Milk Supply). *Chairman,* H. A. WHITTAKER, Director, Division of Sanitation, State Department of Health, Minneapolis, Minn.

Shell Fish **Sanitation Studies** (Report of the Committee on Shell Fish Supply). *Chairman,* H. D. PEASE, M.D., Pease Laboratories, New York, N. Y.

Detailed Committee Reports will be available in mimeographed form to those present, but practically all will be delivered by the Chairmen in condensed form to provide ample time for discussion.

Sunday, October 26

All day inspection trip for Conference of State Sanitary Engineers and *all visiting engineers,* leaving Fort Worth by automobile 9.00 A.M., arriving Dallas 10.00 A.M. Inspection of Dallas's new water purification plant and old sewage purification plant, ending with complimentary visit to the State Fair of Texas where the group will have access to a variety of entertainment.

Tuesday, October 28—6.30 P.M.

Public Health Engineering Section and Conference of State Sanitary Engineers. Annual Engineers Stag Dinner Party at Hotel Texas.

Wednesday, October 29

Joint Inspection Trips—Public Health Engineering Section and Conference of State Sanitary Engineers:

9.30 A.M.—Fort Worth Water Purification and Sewage Treatment Plants.
Swift and Armour Packing Plants.
Complimentary Luncheon.

2.00 P.M.—Cleburne Sewage Works.

INDUSTRIAL HYGIENE

Luncheon Session—Monday

Presiding: ANTHONY J. LANZA, M.D., Assistant Medical Director, Metropolitan Life Insurance Company, New York, N. Y.

First Session—Monday Afternoon

Chairman's **Address.** ANTHONY J. LANZA, M.D., Assistant Medical Director, Metropolitan Life Insurance Company, New York, N. Y.

Human **Relationships on Railroads.** J. N. REDFERN, Manager, Relief, Medical, Employment and Pension Department, Chicago, Burlington & Quincy Railroad Company, Chicago, Ill.

Discussion

Abnormal **Mental States Among Industrial Workers.** EMERSON NORTH, M.D., Director, The Mental Hygiene Clinic, Cincinnati, O.

Discussion.

Industrial **Medical Experiences in South Africa.** J. G. CUNNINGHAM, M.D., Provincial Board of Health, Toronto, Ont.

Discussion.

Section Business and Election of Officers.

Second Session—Tuesday Afternoon

Lead Poisoning in the United States During 1929–1930 (Report of the Committee on the Status of Lead Poisoning). *Chairman*, EMERY R. HAYHURST, M.D., Professor of Hygiene, Ohio State University, Columbus, O.

Discussion.

Nomenclature in Occupational Diseases (Report of the Committee on Standard Practices in the Problem of Compensation of Occupational Diseases). *Chairman*, HENRY H. KESSLER, M.D., Medical Director, Occupational Disease Clinic, State Department of Labor, Newark, N. J.

Discussion.

Developments in the Field of Industrial Fatigue (Report of the Committee on Industrial Fatigue). ANTHONY J. LANZA, M.D., Assistant Medical Director, Metropolitan Life Insurance Company, New York, N. Y.

Discussion.

The Newer Volatile Solvents (Report of the Committee on Volatile Solvents). *Chairman*, ELIZABETH B. BRICKER, M.D., Chief of Hygiene and Sanitation, Department of Labor and Industry, Harrisburg, Pa.

Discussion.

Toxicity of Benzol Hemologues. HENRY FIELD SMYTH, M.D., University of Pennsylvania, Philadelphia, Pa.

Discussion.

Section Business.

Third Session—Thursday Morning

Industrial Medicine in Mexico. JOAQUIN M. SEGURA, M.D., Sanitary Engineer, Departamento de Salubridad Publica, Mexico City, Mex.

Discussion.

Fungus Infection of the Skin of Industrial Workers. ROBERT T. LEGGE, Ph.G., M.D., Professor of Hygiene, University of California, Berkeley, Calif.

Discussion.

Cardio Vascular Lesions Among One Thousand Industrial Machine Operators. A Report of One Thousand Physical Examinations of Machine Operators. WILLIAM A. MUHLBERG, M.D., Medical Director, The Union Central Life Insurance Company, FLOYD P. ALLEN, M.D., Secretary, The Heart Council of Greater Cincinnati, and BLEECKER MARQUETTE, Secretary, The Public Health Federation, Cincinnati, O.

Discussion.

Occupational Nystagmus. CAREY P. MCCORD, M.D., Medical Director, The Industrial Health Conservancy Laboratories, Cincinnati, O.

Discussion.

FOOD, DRUGS AND NUTRITION

First Session—Tuesday Afternoon

Report of the **Committee on Fish and Shell Fish.** *Acting Chairman,* A. C. HUNTER, PH.D., In Charge, Bacteriological Unit Food Control Laboratory, Food, Drug and Insecticide Division, U. S. Department of Agriculture, Washington, D. C.

Some **Observations on Enforcement of Food and Drug Laws in Texas, Including Ginger Poisoning.** E. J. LEMAY, State Department of Health, Austin, Tex.

Newer **Knowledge on Botulism and Mussel Poisoning.** K. F. MEYER, M.D., George Williams Hooper Foundation for Medical Research, University of California, San Francisco, Calif.

SYMPOSIUM ON OCCURRENCE OF MINUTE AMOUNTS OF METAL IN FOODS

The **Use of Metallized Foods.** PROF. J. L. MCGHEE, Emory University, Atlanta, Ga.

Iodine in **Nutrition** WILLIAM WESTON, M.D., South Carolina Food Research Committee, Columbia, S. C.

Effect of **Metals Derived from Cooking Utensils on the Health** of the **Consumer.** WALTER H. EDDY, PH.D., Teachers College, Columbia University, New York, N. Y.

Discussion. F. C. BLANCK, PH.D., Food Research Division, U. S. Bureau of Chemistry and Soils, Washington, D. C.

Report of the **Committee on Meat and Meat Products.** *Acting Chairman,* PAUL E. HOWE, PH.D., Senior Biological Chemist in Charge, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

Second Session—Wednesday Morning

Report of the **Committee on Cereals and Their Products.** *Chairman,* F. C. BLANCK, PH.D., Food Research Division, U. S. Bureau of Chemistry and Soils, Washington, D. C.

Report of the **Committee on Nutritional Problems.** *Chairman,* PROF. HENRY C. SHERMAN, Department of Chemistry, Columbia University, New York, N. Y.

A Study of the **Diets of Federal Prisoners.** PAUL E. HOWE, PH.D., Senior Biological Chemist in Charge, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

The Nutritive **Values of Processed Milks.** JAMES A. TOBEY, PH.D., Director Health Service, The Borden Company, New York, N. Y.

Some **Observations on Musty Eggs.** PROF. MAX LEVINE and D. Q. ANDERSON, Iowa State College, Ames, Iowa.

Report of the **Committee on Fruits and Vegetables.** *Acting Chairman,* WALTER H. EDDY, PH.D., Teachers College, Columbia University, New York, N. Y.

Report of the Committee on Milk and Dairy Products. *Chairman*, WILLIAM B. PALMER, Executive Officer, Milk Inspection Association of the Oranges, Orange, N. J.

Luncheon Session—Wednesday

CHILD HYGIENE

First Session—Tuesday Morning

PRACTICAL APPLICATION OF THE COMMUNITY CHILD HYGIENE PROGRAM

The Infant Before, During and After Birth (From early pregnancy through first year of life). RICHARD A. BOLT, M.D., Director, Cleveland Child Health Association, Cleveland, O.

The Community Health Program as It Applies to the Child from One to Six Years of Age. H. N. BARNETT, M.D., Chief, Division of Child Hygiene, State Department of Health, Austin, Tex.

The Community Health Program As It Applies to the Child from Six Years to Adolescence. WALTER H. BROWN, M.D., Professor of Hygiene, Department of Physical Education and Hygiene, Stanford University, Palo Alto, Calif.

The Adolescent Age. No author.

PUBLIC HEALTH EDUCATION

First Session—Monday Morning

What Mr. Average Citizen Knows and Does About Health. HOWARD W. GREEN, Sanitary Engineer, Cleveland Health Council, Cleveland, O.

What He Should Know and Do. C.-E. A. WINSLOW, DR.P.H., Yale University, New Haven, Conn.

The Work of the Health Department of Mexico in Relation to Health Education. MANUEL MARTINEZ BAEZ, M.D., In charge of Propaganda and Education, Departamento de Salubridad Publica, Mexico City, Mex.

Dinner Session—Monday Evening

Closed Session—For Members and Fellows of Section only

Section Business.

Luncheon Session—Tuesday

What an Extension Division of a University Can Do Along the Lines of Public Health Education. BERTHA ASHBY, University of Oklahoma, Norman, Okla.

Discussion. JEAN M. PINCKNEY, University of Texas, Austin, Tex.

Second Session—Thursday Morning

Hazards of Commercial Health Advertisements. BLEECKER MARQUETTE, Executive Secretary, Public Health Federation, Cincinnati, O.

What Technic of Commercial Advertisers May Be Used Effectively by the Health Worker? W. W. BAUER, M.D., Health Officer, Racine, Wis.

Discussion. HAVEN EMERSON, M.D., Department of Public Health Administration, Columbia University, New York, N. Y., and J. C. FUNK, Director of Health Education, State Department of Health, Harrisburg, Pa.

PUBLIC HEALTH NURSING

First Session—Monday Afternoon

The Relation of **Official and Non-Official Groups Administrating** Public **Health Nursing Service in the Following Respects:**

a. Joint Staff Education Program.

b. Sharing of Specialized Supervisors such as Nutrition and Mental Hygiene.

c. Division of Responsibility to Avoid Duplication in Program of Work in Families.

ELIZABETH W. HOLT, R.N., Director of Nursing, Visiting Nurse Association, Dayton, O.

Discussion.

How Can **We Teach Public Health Agents, Particularly the Rural** Nurse, to **Present Her Public Health Needs and Results in an** Interesting **Manner to Appropriating Bodies with the Object of** Obtaining **Increased Support?** RUTH WOOD, R.N., Director, Maternity Center Association, Brooklyn, N. Y.

How To **Secure and Use Advisory Committees for Official and** Non-Official **Agencies.** NETTA FORD, R.N., Visiting Nurse Association, York, Pa.

Nursing **Service and Health Education Must Dovetail to Have an** Effective **Health Program. The Nurse's Part in Arousing In**terest and **Suggesting Methods for Results.** KATHARINE HAGQUIST, R.N., State Department of Health, Austin, Tex.

Second Session—Tuesday Morning

The Prevention **of Cancer as a State-Wide Program and the** Nurse's **Responsibility in This Program.** JOSEPH COLT BLOODGOOD, M.D., Chairman, Maryland Cancer Committee, Baltimore, Md.

Discussion.

Problems **Equally Trying to Health Officer and Nurse in the Administration of Small Town or Rural Health Work. Plans that** Have **Been Effective. The Kind of Administration that Develops the Nurses and Makes it Possible for Them to get Effective** Results. JESSIE L. MARRINER, R.N., Director, Bureau of Health Hygiene, and Public Health Nursing, State Board of Health, Montgomery, Ala.

How the **Nursing Staff of a Well Organized County Health De**partment is **Directed and Obtains Effective Results through Supervision.** No Author.

Discussion on Administrative Practice in States, Counties and Cities. What are the Nurse's Responsibilities and How Should She Correlate Her Activities with Other Health Agencies? MYRA CLOUDMAN, R.N., American Red Cross, St. Louis, Mo.

The Work of the Visiting Nurse in Mexico. MARIO TORROELLA, M.D., Director of Child Hygiene, Departamento de Salubridad Publica, Mexico City, Mex.

EPIDEMIOLOGY

First Session—Monday Morning

SYMPOSIUM ON TYPHOID FEVER

Water-Borne Typhoid at Seneca Falls. F. W. SEARS, M.D., Syracuse, N. Y.

Epidemiological Features of Typhoid Fever in Richmond, Virginia. A. W. FREEMAN, M.D., School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

Olean City Epidemic of Typhoid Fever in 1928. A. S. DEAN, M.D., State District Health Officer, Jamestown, N. Y.

Typhoid Fever in Knoxville, Tenn. (second paper) with special reference to the significance of findings in a detailed sanitary survey of the city. WILLIAM H. ENNEIS, M.D., Knoxville, Tenn.

Discussion of papers on Typhoid Fever.

Second Session—Wednesday Morning

Incidence of Partial Paralysis. H. C. STEWART, M.D., and E. L. BISHOP, M.D., State Department of Health, Nashville, Tenn.

Incidence of So-called "Jake" Poisoning in Oklahoma City and Vicinity. DAVID T. BOWDEN, M.D., Director of Laboratories, State Department of Public Health, Oklahoma City, Okla.

Discussion.

Administrative Aspects of Epidemiology. GEORGE H. RAMSEY, M.D., Johns Hopkins University, Baltimore, Md.

Discussion.

Observations on the Result of Immunization Against Diphtheria in Children upon Case Incidence and Mortality from this Disease. C. H. KINNAMAN, M.D., Topeka, Kans.

Discussion.

MEETINGS OF OTHER ORGANIZATIONS DURING THE CONVENTION

American Association of School Physicians. Program to be Announced.

International Society of Medical Health Officers joint with the American Association of School Physicians. Program to be announced.

Association of Women in Public Health. Program to be announced.

Conference of State Sanitary Engineers (See Public Health Engineering Section Program).

Texas Association of Sanitarians. Program to be Announced.

1930 European Delegation. Dinner—Monday Evening.

Delta Omega. Dinner—Wednesday Evening.

PRELIMINARY PROGRAM

SCIENTIFIC SESSIONS IN MEXICO CITY

Monday Morning, November 3

Address of **Welcome.** RAFAEL SILVA, M.D., Chief of the Departamento de Salubridad Publica, Mexico City, Mex.

Reply to **Address of Welcome.** A. J. CHESLEY, M.D., President, American Public Health Association; HUGH S. CUMMING, M.D., Surgeon General, U. S. Public Health Service, Washington, D. C.; and J. C. ANDERSON, M.D., State Health Officer, Austin, Tex.

History of **Health in Mexico.** ULISES VALDES, M.D., Secretary General, Departamento de Salubridad Publica, Mexico City, Mex.

Local **Public Health Work.** MIGUEL BUSTAMENTE, M.D., Director Health Unit, Vera Cruz, Mex.

Display of **Film Showing Public Health Work in Mexico.**

Tuesday Morning, November 4

Address. W. S. RANKIN, M.D., Chairman, Executive Board, American Public Health Association, Duke Endowment, Charlotte, N. C.

Address. B. J. LLOYD, M.D., Pan American Sanitary Bureau, Washington, D. C.

Safeguarding a **City Milk Supply.** H. V. CARDONA, D.V.M., Supervisor of Milk Sanitation, Department of Public Health and Welfare, Fort Worth, Tex.

For information regarding railroad fares to Fort Worth, hotel rates in Fort Worth, and full details of the Mexico City post convention tour, consult June and July issues of the American Journal of Public Health.

ASSOCIATION NEWS

FIFTY-NINTH ANNUAL MEETING

FORT WORTH, TEXAS

October 27–30, 1930

SOME MEMBERS OF THE LOCAL COMMITTEE

A. H. FLICKWIR, M.D.
Director Public Health and Welfare, Fort Worth, Tex.

J. C. ANDERSON, M.D.
State Health Officer, Austin, Tex.

MRS. HENRY B. TRIGG
Chairman, Women's Entertainment Committee, Fort Worth, Tex.

WELCOME TO TEXAS

MRS. O. E. CARR

Member of Women's Entertainment Committee, Fort Worth, Texas

ROTARIANS seem to have recognized earliest the benefits of close association and travel. Every separate organization of that leadership has become a "know your own country" enthusiast. The American Public Health Association has set its face toward Texas for its late October Annual Meeting.

There are loyal members who will follow wherever the Association elects to go. There are other members who will say: "It is a long trip and a hard one and just why should I make a special effort to go to Texas? If it were New York City, now, etc., . . . if it were Denver, etc., etc., . . . or if it were San Francisco, etc., etc., etc. . . ." But the

American Public Health Association is going to Texas; they reiterate it in a most matter of fact way. If the individual is from New York City he is not anticipating much, for does not civilization reach the positive dead line at Buffalo? And Texas, particularly, has but wigwams, Indians and cow-punchers. Texas smiles quietly in her sleeve; too big for jealousy, too generous for fault-finding, hospitably waiting for all of the world, and the American Public Health Association in particular, to come, to find, to love, to hold a unique memory close forever.

Some of the members will travel south by automobile. They will ride for miles over well conditioned roads toward Fort Worth, the shadowy outlines of her sky-scrapers appearing finally on the horizon, mystic as mirage, and dim as the fabled city of Camelot. It is the end of a long journey and the wayfarer will find peace, a good hotel, and the best and cheapest food in the land.

It is October in Texas; there is not a trace of frost in the air, for it is not yet time to think of winter. If the month were May a short excursion into the by-ways would reveal the lavish array of Texas wild flowers—the Blue-bonnet the queen of them all. If it were July the watermelons would be coming in by the truck load—big, juicy, sweet and luscious beyond description. There are those who having once tasted real Texas melon have thereafter refused the delicacy elsewhere. But it is October! The pecans, native to this region, and the big paper-shelled variety are almost ripe now. Citrus fruits and vegetables are shipped in every day from the Rio Grande Valley and from the Winter Garden regions of Texas. Yellow-legged chickens are cooked in regiments every day by chefs with personality. Fort Worth and this delicious southern chicken will always loom large in memory. The spirit of hospitality is evident in the various clubs. Many men's clubs there are and one of the most delightful Woman's Clubs in the country.

The most wonderful physiological fact about Fort Worth is the rapidity of the growth of the city. In 1920, the population was 103,000; in 1930, it is reaching for the 200,000 mark. Just a few miles from Fort Worth lies Lake Worth, probably the largest artificial body of water in Texas. It was designed by the City of Fort Worth for a water supply. Two more larger lakes are to be built to supplement it.

We have said that Texas was different, yet it is hard to put the difference in words. For instance, the sun goes down and night comes to Texas, as she does all over the world. There is white magic in Texas nights. The cares of the day go far away. The heavens come down very near and the stars are very bright. The spirit is reborn; romance blooms again; and the dreams which were born of youth's inexperience return with even greater allure.

Texas is a land of history. Coronada in his search for the fabled cities of gold probably crossed the site of Fort Worth in 1541. The state has been under five flags—five different types of government. The state produces oil, cattle, wheat, corn and cotton. Of late, manufacturing is developing rapidly.

Texas has sacred ground. Men lift their hats as they pass the Alamo—that quiet shrine, where men died for Texas liberty.

It may be that this past history and the traditions of Texas are the means of stimulating in this Southwest a growth of creative effort, which is manifesting itself in the composition of music, poetry and painting.

In Fort Worth and Texas generally, flying is making phenomenal progress, the climate being conducive to its development.

Texas is the last great frontier. It is hard to realize among the skyscrapers of Fort Worth that just a few hours away

hunting for game is still a possibility. Turkey and deer may be found west of Menard, and in the head waters of the San Saba a forty-seven and one-half pound catfish was landed only this summer—and there are more fish in the San Saba.

In Texas, the distances are vast and the thought of man wanders far. Almost every Texan knows a little of geology. Oil has its lessons. The bit that grinds its way toward the golden flow passes sand after sand that was once sea floor. Fossil deposits have yielded wonderful results. In the Public Library of Fort Worth may be seen the tusks and cranium of a mastodon, thousands of years of age.

Yes, Texas is different. So different, that once here, man would live his life within the state boundary. Here are found all that round out life—friends, change, adventure, variety of climate, desirable pursuits, and the things that dreams are made of. Where can man find more?

WOMEN'S ENTERTAINMENT COMMITTEE

MRS. HENRY B. TRIGG

Chairman

THE chairman of the Local Committee has appointed a sub-committee to have charge of the entertainment for the ladies. This, of course, will include the women members of the Association and the wives and daughters of members.

The committee of women has planned several entertainment features that we hope will be of interest to our guests. Among these will be a ride over the city and adjacent country, which is indeed very picturesque in late October, and a musical tea at the Woman's Club. Fort Worth is very proud of its Woman's Club building, a most beautiful structure, located on one of our most attractive streets, Pennsylvania Avenue, and owned and supported by the women's clubs of this city. Naturally, it is the center of women's activities.

The women are, of course, invited to the barbecue and rodeo, the ride to Lake Worth, the annual banquet, and the dance to be given on the evening of the opening exercises.

The weather in Fort Worth in October is delightful for golf and the city has many country clubs and two municipal courses which will be thrown open for the use of our guests. Mrs. Pauline Stripling French, at one time woman golf champion of Texas, and one of our most noted golf enthusiasts, will have charge of this feature of the entertainment. Mrs. French will see that those interested in golf are furnished transportation and that arrangements are made for them to play. She would like very much to have the women bring their handicaps with them.

MRS. PAULINE STRIPLING FRENCH

Automobiles will be available for those that would like to visit the health centers, universities, and other places of interest in the city, or perhaps look up some friend in Fort Worth. In other words, the committee of women will endeavor to do everything possible to make your stay in Fort Worth enjoyable in order that you may remember it as one of the happiest occasions connected with the Annual Meetings of the American Public Health Association. We desire that our guests may feel that Fort Worth is truly typical of southwestern hospitality, for which it is known throughout the United States.

INVITATION TO VISIT SAN ANTONIO

An invitation has been extended by Dr. W. D. King, Health Officer of San Antonio, to stop over in that city on the way to Mexico City. This invitation has been officially authorized by the City Health Board, Bexar County Medical Society, and the Auxiliary of the Bexar County Medical Society. Guests will be entertained at luncheon, October 31, and a sight-seeing trip has been planned.

NEW MEMBERS

Health Officers Section

G. A. Ashbaugh, M.D., Rocky Ford, Colo., Otero County Health Officer

A. Bossinotte, M.D., Matane, P. Q., Health Officer, Matane County Health Unit

Enoch M. Buckner, Dayton, Tenn., Sanitary Inspector, Rhea-Meigs County Health Unit

David D. Carr, M.D., LaFayette, Ala., County Health Officer

Arthur Caux, M.D., Lotbiniere, P. Q., Medical Officer of Health

Eliphalet A. Cornell, Sault Ste. Marie, Mich., Health Officer

Frederick U. Davis, M.D., Faribau't, Minn., Health Commissioner

Judson D. Dowling, M.D., Birmingham, Ala., County Health Officer

J. Cyril Eby, M.D., Plaquemine, La., Director, Iberville Parish Health Unit

Edgar H. Hand, M.D., Charlotte, N. C., Assistant Health Officer, Mecklenburg County

Marie A. Harrison, R.N., Maplewood, N. J., Health Officer

Matthew J. Keough, M.D., Cohoes, N. Y., Health Commissioner

G. W. Luckey, M.D., Fort Worth, Tex., Assistant Director, Public Health and Welfare

Peel M. Payne, M.D., Napoleonville, La., Director, Assumption Parish Health Unit

Gerard C. Unrein, M.D., Hays, Kans., Ellis County Health Officer

Ludwig C. Yen, M.D., Nanking, China, Director, Department of Medical Administration (Assoc.)

Laboratory Section

Paul Eaton, M.D., Jacksonville, Fla., Director, Bureau of Laboratories, State Board of Health

James C. Hofmann, Topeka, Kans., State Bacteriologist, Public Health Laboratory

Newton W. Larkum, Ph.D., Lansing, Mich., Immunologist, State Department of Health

Eloy B. Moreno, Laredo, Tex., Milk and Dairy Inspector

Charles Paley, B.S., New York, N. Y. (Assoc.)

William O. Pauli, M.D., Cincinnati, O. (Assoc.)

Jack Wyatt, Amarillo, Tex., City Chemist

Public Health Engineering Section

Ashley G. Classen, Austin, Tex., Sanitary Engineer, Western Metal Manufacturing Co.

H. R. F. Helland, San Antonio, Tex., Consulting Sanitary Engineer

Bluford W. Jackson, Hammond, Ind., Municipal and Industrial Water Chemist

Mark B. Owen, Dearborn, Mich., Supt., Public Works and Engineering

Industrial Hygiene Section

Muriel B. Kingsley, B.S., Chicago, Ill., Health Education Secretary, Chicago Y. W. C. A.

Jessie B. Love, R.N., Van Lear, Ky., General Industrial Educational Program (Assoc.)

Zelma Rice, Fort Worth, Tex., City Industrial Hygiene Staff

Food, Drugs and Nutrition Section

E. E. Waters, Waco, Tex., Supt., Borden's Milk Company

Arthur H. Williamson, D.V.M., Charlotte, N. C., Supervisor, Dairy Sanitation, Health Department

Child Hygiene Section

Lucile S. Blachly, M.D., Jacksonville, Fla., Director, Bureau Child Hygiene
Anne Douglass, R.N., Houston, Tex., Supervising Nurse, Harris County Red Cross Public Health Nursing Service
Mrs. May Fair, Sherman, Tex., School Nurse, City Schools
Mary Kennedy, R.N., Houston, Tex., Health Supervisor, DePelchin Faith Home
Emma G. Shannon, R.N., Fort Worth, Tex., Public School Nurse

Public Health Education Section

Manuel M. Baez, M.D., Mexico, D. F., In charge hygienic education
Mary L. Boillin, Clarksville, Tenn., Director, Department of Physical and Health Education, State Teachers College, Fredericksburg, Va.
Mrs. S. I. Bolton, R.N., Nashville, Tenn., Exec. Secy., Davidson County Anti-Tuberculosis Association
John E. Burke, M.D., Schenectady, N. Y., Director, Health Education
Terence F. Cunneen, LL.B., Washington, D. C., Manager, Insurance Dept., Chamber of Commerce of United States (Assoc.)
Patrick H. Fleming, M.D., St. Martinville, La., Director, St. Martin Parish Health Unit
Jacob L. Lochner, Jr., M.D., Albany, N. Y., Assistant Medical Inspector, City Public Schools
John O. McReynolds, M.D., Dallas, Tex. (Assoc.)
Ira O. Park, M.D., Union City, Tenn., Medical Advisor, and Associate Editor *Babyhood*
William H. Phipps, D.P.H., Kansas City, Mo. (Assoc.)
Ralph A. Reynolds, M.D., San Francisco, Calif. (Assoc.)
N. F. Williams, D.V.S., Fort Worth, Tex., State Veterinarian

Public Health Nursing Section

Addie Alexander, R.N., Ballinger, Tex., County Health Nurse
Christina Anderson, R.N., New York, N. Y., Supervisor of Nurses, Henry Street Visiting Nurse Association
Thelma M. Bailey, R.N., Fort Worth, Tex., Public Health Nurse, City Staff
Helen M. Bartholomew, R.N., Circleville, O., Pickaway County Public Health Nurse
Ada L. Clark, Fort Worth, Tex., City Public Health Nurse
Vella M. Custer, Fort Worth, Tex., Public Health Nurse, City Staff
Mary J. Dunn, Nashville, Tenn., Director, Public Health Nursing, Vanderbilt University
Gertrude L. Ezell, R.N., Fort Worth, Tex., Nurse
Rhoda M. Foster, R.N., Fort Worth, Tex., City Public Health Nurse
Lena T. Franks, R.N., Fort Worth, Tex., School Nurse
Hortense Hilbert, R.N., New York, N. Y., Staff Associate, Div. of Med. Service, American Child Health Association
Ruth M. Knapp, R.N., Hillsdale, Mich., City and School Nurse
Ethel M. Lindley, R.N., Huntville, Tex., Nurse
Elizabeth Parks, R.N., Fort Worth, Tex., Nurse, Southwestern Bell Telephone Co.
Margaret G. Smith, R.N., Salem, O., Public Health Nurse, Columbiana County
Nell Stoltzfus, R.N., Sinton, Tex., Nurse
Mary E. Tucker, R.N., Fort Worth, Tex., Nurse, County and City Tubercular Colony
Alyce J. Wallace, R.N., Fort Worth, Tex., City Public Health Nurse
Minerva E. Wilson, R.N., Fort Worth, Tex., Public Health Nurse, City Staff

Epidemiology Section

Percy S. Pelouze, Philadelphia, Pa., Member, Medical Advisory Board, American Social Hygiene Association

Unaffiliated

Emmett Fayen, M.D., Cincinnati, O., Assistant Medical Director, Union Central Life Insurance Co.
F. W. Felthouse, San Antonio, Tex. (Assoc.)
William R. Hendrix, Murfreesboro, Tenn., Sanitary Officer, Health Department
Edward Kuck, M.D., Cincinnati, O. (Assoc.)
Greene L. Red, M.D., Charlotte, N. C., Venereal Disease Clinic, City Health Department
Edward F. Sherman, Pasadena, Calif. (Assoc.)
William H. White, M.D., Keene, N. H., Resident Physician, Southern American Gold & Platinum Corp.

Sustaining Members

Nye Odorless Incinerator Corp., Albany, Ga.

APPLICANTS FOR FELLOWSHIP

HEALTH OFFICERS: **Fred T. Foard, M.D., Santa Barbara, Calif.; John J. Sippy, M.D., Stockton, Calif.**

LABORATORY: **A. R. M.MacLean, Montreal, Canada; Charles Henry Adams, Indianapolis, Ind.**

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UNAFFILIATED: **Edward Everett Hamer, Carson City, Nev.; Fitch C. E. Mattison, M.D., Pasadena, Calif.; A. Grant Fleming, M.D., Montreal, Can.; William Ford Higby, San Francisco, Calif.; Edward Desmond Hopkins, Fort Worth, Tex.**

FORT WORTH HOTEL RESERVATIONS

THE attention of delegates to the Fort Worth Annual Meeting is called to the fact that there is a shortage of single rooms in the headquarters hotel.

The Hotel Committee ask that reservations for single rooms or other accommodations be sent in as soon as possible. They would appreciate an indication as to whether delegates will be willing to share rooms with others during the convention.

A complete list of Fellows and Members of the American Public Health Association, as of August 1, 1930, will be published in the October issue of the Journal.

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D. P. H.

Nursing Technic in Minneapolis—Dr. J. A. Myers of Minneapolis, in a paper (in press) presented before the nurses associations recent meeting in Milwaukee, emphasized the importance of strict contagious disease technic in the nursing of tuberculosis, directed primarily toward the protection of the nurse. The project is under way in Minneapolis to establish in the contagious building of the Minneapolis General Hospital, in cooperation with the Minneapolis Health Department, a 20-bed ward where student nurses are to be given strict contagious disease technic training in tuberculosis nursing. It is believed that this is a forward step in nursing technic for a general hospital and it is hoped that the demonstration will be of value to general hospitals throughout the country in teaching this important subject for the safeguarding of the health and lives of nurses engaged in the nursing of tuberculous patients.—F. E. Harrington, M.D., Health Commissioner, Minneapolis, Minn.

Undulant Fever—During the past year investigations have been carried on by the U. S. Public Health Service along two lines. Dr. Hardy, in Iowa, has studied approximately 200 cases occurring in that state in 1929 which, added to those previously investigated, provides a total of 375 cases for his epidemiologic study. Dr. Hasseltine has investigated 109 cases in 14 different states. Of 442 cases for which epidemiologic data are available, 198 are placed in the milk group, having occurred in individuals who have not been exposed to livestock. There are 200 cases in the farm group, people living in the country who have direct contact with livestock. There are 44 cases in the meat group, urban cases having direct contact with livestock or carcasses.

There have been 13 cases in children under 10 years of age. The greatest incidence has been in the age group 35 to 44. Simpson has collected 1,305 cases in the United States.

Pasteurization of milk is an effective means of protecting against milk-borne infection. Arnold, in the January issue of the *Health Messenger* of the Illinois State Board of Health, reported that 140° F. for 40 minutes was required to kill certain strains of *Brucella abortus*. He did not, however, give any details, and the temperature which he used is 2° or 3° below the standard pasteurization temperature. The epidemiologic studies indicate that where milk has been a factor in the spread of infection, the supply had not been pasteurized. In two cities, Frederick, Md., and Waycross, Ga., ordinances have been passed requiring that all milk be pasteurized. The immediate factor stimulating the passage of such ordinances was outbreaks of undulant fever due to raw milk.

Undulant fever can also be contracted by means of transmission other than milk. Contact with infected animals, particularly infected hogs, may result in infection. While the serological examination of livestock is a practicable method of attacking the problem of undulant fever, for the present at least, we must rely upon the education of those whose occupation subjects them to the hazard to guard against contact infections, and upon pasteurization to prevent milk-borne cases. Pasteurization

of the milk renders it safe and takes care not only of undulant fever but of all other communicable diseases transmitted by milk.—H. E. Hasseltine, Recent Progress in Studies of Undulant Fever, *Pub. Health Rep.*, 45, 1660 (July 18), 1930.

Diphtheria Prevention in New York—The total number of children immunized against diphtheria during the first 6 months of 1930 is less than for the same period of the preceding year when 124,000 children were immunized. This indicates the great difficulty in reaching people in a large city. The campaign has yielded valuable results with low figures in cases and deaths from diphtheria as shown by tables presented.—*Week. Bull.*, New York Dept. of Health, June 28, 1930.

Public Health in Iowa—A study has been made of the public health machinery of Iowa, official and unofficial, and its relationship and coördination with the State Health Department. The present organization and divisional activities of the State Health Department have been studied and recommendations for reorganization enumerated. Iowa spends less per capita each year for public health than any other state in the Union. In 1925 the average per capita expenditure for 48 states was 9 cents. Iowa was at the bottom of the list of the 10 states which appropriate less than 5 cents per capita, the amount for this state being 2.4 cents. It is recommended that as a beginning this be increased to 5 cents.

Instead of building up a large central organization for the supervision of health activities it is recommended that local units of the county type be created and maintained under constant supervision and control of the State Health Department. A full-time county health department will most adequately meet the health needs of each local district. It is recommended that the State Medical Society recognize and accept the obligation for providing adequate medical advice and treatment for all citizens at a reasonable cost. The Governor should appoint a special public health advisory council for the purpose of coördinating all public health activities in Iowa.—A. J. McLaughlin, A Public-Health Survey of Iowa, *Pub. Health Rep.*, 45, 1573 (July 11), 1930.

Tuberculosis Service in Cattaraugus County—Beginning January 1, 1923, through the coöperation of the Milbank Memorial Fund, the first rural county-wide organization for the control of tuberculosis was established in New York State. In that year a County Board of Health was created with one bureau devoted to tuberculosis control. The county with its 75,000 inhabitants and 1,343 square miles was divided into 6 administrative health districts with case finding, clinic, nursing and medical personnel available for each district.

During the 10 years prior to the beginning of this demonstration, there was reported an average of 1.4 new cases per annual death. In 1924, the first year of the campaign, the cases reported as active, apparently arrested, or arrested, gave a ratio of 6.9, which obviously was a cumulative ratio. For 1927 there were 3.7 new cases reported per annual death.

One of the first undertakings in 1923 was the preparation of a living case file. The list of 237 cases was carefully checked and of this number, 102 cases were cancelled, as the patients had either moved from the county, died, or could not be located. In 1923 there were 135 known cases of tuberculosis. In 1927 there were 636 known cases.

In 1926 particular attention was devoted to the examination of contacts. Thirty-two per cent of all cases diagnosed as tuberculous gave a history of tuberculosis in their immediate family.

During the 5-year period 1923–1927, a total of 7,171 persons was examined especially for tuberculosis, or approximately 10 per cent of the entire population of the county. Home treatment for special types of cases which were not hospitalized was given particular emphasis. It has been found that for adequate diagnostic service there should be available a half-day clinic per month for every 5,000 to 8,000 population. It is too early to evaluate the results statistically.—Stephen A. Douglass, *The Organization of a Rural Tuberculosis Service,* Milbank Memorial Fund, 1930.

Los Angeles County Health Department—Los Angeles County was the first county government in the United States to attempt to bring together under one roof health department, emergency medical and surgical service, clinics for the indigent sick, school health service, social service, and other related work in the community, combining the resources of the county government, the municipality and the school district. The first major unit was established for the San Fernando District in 1926. At present there are 13 districts, each having a complete health department organization. Each unit consists of the following services: (1) community public health, including communicable disease control, sanitation and preventive medicine; (2) school hygiene and educational work under the direction of local school authorities; (3) service to the indigent sick or dependent poor including emergency hospital and clinic work manned by voluntary physicians serving without pay; (4) coördination of social services, medical as well as county division of welfare work.

For the year 1927 the Los Angeles County Health Department was appraised by representatives of the American Public Health Association and scored 820 points out of a possible 1,000.

Preschool hygiene rated 100 per cent; laboratory work and popular health instruction and prenatal work scored over 90 per cent while sanitation, infant hygiene, vital statistics and tuberculosis were rated each approximately 80 per cent. The weakest divisions of the department were venereal disease and communicable disease control.—J. L. Pomeroy, *Report of Los Angeles County Health Department,* June 30, 1929.

LABORATORY

C. C. YOUNG, D. P. H.

PREPARATION OF ACIDOPHILUS MILK FROM MILK TREATED BY ELECTRICITY*

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REVIEW OF LITERATURE

BEFORE a desirable cultured milk of any type can be prepared it is necessary to reduce the bacterial content of the milk to be inoculated to a negligible quantity. Heat has been the common means and several temperatures and exposure periods are being used.

In the preparation of *Lactobacillus bulgaricus* milk Hammer and Hauser (1916)[1] stated that, if the original milk was very clean, pasteurization at 82° to 93° C. for 30 to 40 minutes might be satisfactory; but if not, double pasteurization was ordinarily effective. This consisted of pasteurizing on two successive days with thorough cooling during the time between heatings. Hammer also suggested that when large lots of the milk were to be prepared double pasteurization was advisable unless the milk was very clean.

For the preparation of *Lactobacillus acidophilus* milk, Prucha and Brannon (1926)[2] pasteurized skim milk of a good quality at 79° to 80° C. for 30 minutes, cooled to 37° or 38° C., allowed it to stand 3 to 4 hours, and then repasteurized. Kopeloff (1926)[3] suggested pasteurizing skim milk at 90° to 93° C. for 1 hour. The milk was then cooled to 37° C. for 3 to 4 hours and repasteurized.

Reichart and Davis (1928)[4] are of the opinion that the above mentioned methods are rather tedious and the results somewhat uncertain. They suggest heating the milk under a pressure of 12 to 15 lb. at a temperature of 118° to 121° C. for 30 minutes.

In all of the above mentioned methods for preparing acidophilus milk, a 2 to 3 per cent inoculum of *L. acidophilus* was used, and the milk incubated at 37.5° C. for 18 to 36 hours.

EXPERIMENTAL

During the past year several phases of pasteurization of milk by electricity have been studied, and in connection with these studies a commercial plant using the electrical method was visited frequently. This plant was using the Electropure process[5] operating at 70° to 71° C. Samples of raw milk were taken and large samples (1 to 2 liters) were taken following treatment. Plate counts were made according to the *Standard Methods of Milk Analysis* (Fifth Edition), 1927 (Table I). Since only a small portion of the treated milk was used for plating, a large quantity was left for experimental purposes; this was inoculated with about 2 to 3 per cent of a 24-hour culture of *L. acidophilus* and incubated at 37.5° C. for approximately 24 hours.

In every case a desirable product resulted. The curd was fine, soft, easily broken, and very little whey expressed.

TABLE I

Sample No.	Raw Milk	Electro-pure Milk	Percentage Reduction
1	130,000	2,500	98.08
2	400,000	2,000	99.50
3	400,000	2,800	99.30
4	450,000	3,000	99.33
5	40,000	7,000	82.50
6	60,000	5,000	91.66
7	375,000	2,000	99.47
8	26,000	4,800	81.54
9	110,000	2,000	98.18
10	150,000	4,000	97.33
Average	214,100	3,510	98.34

The milk had a taste of freshly soured milk and since the heating was not sufficient to caramelize it there was no decided cooked flavor. Microscopic examination revealed that the growth of organisms remaining in the original milk was unimportant.

DISCUSSION

Milk electrically pasteurized, in a manner no different from that employed for sale as liquid milk, appears to be suitable for the production of acidophilus milk. The bacterial content of the original milk was reduced to a negligible quantity.

This method of preparing cultured milk has several distinct advantages: (1) ease with which the milk can be prepared for inoculation, (2) whole milk can be used, (3) no special sterilizing equipment is necessary, and (4) a product with a fresh sour taste and not a cooked taste or color is produced.

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* Journal Article No. 34, New Series, from the Michigan State College Agricultural Experiment Station.

AN IMPROVED DRYING PLATE

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DIRECT microscopic examinations of milk samples have become one of the chief control measures in many laboratories during the past few years. It is a worth while system, and has many advantages.

The Scott-Powell laboratories have used this method quite extensively in their daily control work. Several obstacles had to be overcome in adapting this method to our work; namely, the production of a compact portable outfit, which could be used for hours at a time without attention from the operator.

To meet this demand, we have designed an outfit that has been giving us excellent service for over two years; and at the present time we are using three such outfits in our control work.

The outfit consists of a small metal carrying case, divided into two compartments. One compartment is asbestos lined, and is covered by a tinned copper plate. This plate is automatically kept at a constant temperature by means of an electric light, which is thermostatically controlled. The thermostat is adjustable to any temperature, to suit the individual operator. When not in use, the 18 ft. of extension cord can be readily coiled up within this space.

The other compartment contains

Improved Drying Plate

metal slide racks of a standard size, so that the whole rack may be dipped into standard staining jars; allowing 20 slides to be stained at one time. There is also a place for pipettes, needles, etc.

On the hot plate, there is a special arrangement for holding the standard size card, for guiding the operator. This card is held in place by a spring arrangement, which also holds the slide firmly in place during the operation of making the smear.

Under actual working conditions we find that this piece of equipment has been of great value to us, in that it is compact, sturdy, and accurate in operation; preventing overheated smears, with the resulting loss of time, and possibly lost samples.

This piece of equipment will be put on the market by the Arthur H. Thomas Company of Philadelphia, under the name of "Robinson Warm Plate and Staining Rack."

DETECTION OF INDOL IN BACTERIAL CULTURES

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DURING recent experiments on the production of indol by various bacterial strains, it was found that the sensitivity of the paradimethylaminobenzaldehyde test, for small quantities of culture (5 c.c.), could be considerably increased by dialyzing the culture into an equal volume of isotonic saline, and performing the test upon the dialysate instead of upon the crude culture. This result is peculiar since presumably only up to one-half of the total indol present can be in the dialysate. Nevertheless, an actually deeper color is given by the chloroform extract from the reaction performed on the dialysate than is given by the extract with the undialyzed culture. Blank tests showed that this intensification of extract color was not in any way due to materials in the dialyzing membrane. The clear test solution afforded by dialysis has the further advantage that the chloroform extracts from such a solution are always clear, thus facilitating comparison with standards. When the crude culture is tested, the extract frequently tends toward cloudiness, due to precipitates formed during the reaction.

Table I refers to results obtained from 5 c.c. peptone water cultures of a non-indol producing organism (*Staph. citreus*) to which known amounts of indol were added just before placing in the icebox. One series of cultures was dialyzed by the method given. The other series was not dialyzed. The chloroform extracts from both series were compared with color standards freshly made from known aqueous solutions.

It is seen that with crude cultures color begins to show at about 12 mmg., whereas with the dialysates amounts as low as 1 mmg. may be detected (i.e., 0.5 mmg. or less in the dialysate). As the amount of indol is increased, the value found for the dialysate tends to approach more closely one-half of the total amount of indol originally present in the culture. A smooth curve could not be drawn of this approach, possibly due in part to the gap of 2 mmg. between standards, and the impossibility of accurately judging values between standards. It should be mentioned that the dialysis method was also attempted with cultures of bacteria grown in macerated salmon flesh. Satisfactory results were not obtained, due to the passage through the cellophane membrane of substances which formed a heavy precipitate in the test. The use, however, of another type

TABLE I

Mmg. Indol in culture		0	0	1	2	4	8	12	16	20	24	30	34	40	44	50	100
Mmg. Recovered in Test	*Not* Dialyzed	—	—	—	—	—	—	trace	2	5	6	8	8	10	10	14	30
	Dialyzed	—	—	trace	trace	1.5 apx	3	5 apx	6	8	10	12	15 apx	18	20	24	50

of membrane might make it possible to apply this method to testing the production of indol in spoiled fish or meat. At present the most satisfactory method for such determinations is that of steam distillation as described by Clough.

TECHNIC

Cellophane * was the dialyzing membrane used. This material has been described by Hill, and by Wilson, as a sterilizable dialyzing membrane useful in bacteriological procedures. The organism to be tested is inoculated into 5 c.c. quantities of tryptophane broth in 5" x ½" lipless tubes. After 48 hours' incubation, the cotton plugs are removed and an unpunctured sheet of cellophane, about 6" x 6", is folded down tightly over the mouth of each tube by means of several turns of a rubber band. The cellophane tube or bag thus formed is then slid part way off the test tube, still remaining bound to it by the rubber band. The test tube is now inverted, allowing the culture fluid to fall into the dialyzing bag. The inverted test tube with its dependent bag is then hung within an 8" x 1" tube containing 5 c.c. of a saline solution isotonic with the medium. The unit is placed in the icebox for 24 hours. The bags are removed, and any fluid adhering to the outer surface is washed down into the dialysate with a few drops from a washbottle. The clear dialysate is then pipetted off into a 6" x ⅝" tube, in which it is subjected to the test. Comparison with color standards is facilitated if the chloroform extract is pipetted off into a still smaller clear glass tube which is placed in a comparator with the standards.

Icebox dialysis is particularly necessary in the case of cultures of motile organisms, which may at higher temperatures penetrate the membrane in such numbers as to cloud the reaction. Formalin as an immobilizing agent is useless, since even in very low concentrations it has the effect of almost completely inhibiting the reaction. Other antiseptics were not tried.

Clough has given a comprehensive review of the various tests for indol and skatol. He recommends a modification of the Ehrlich test. This has given complete satisfaction in this laboratory, and for convenience is reproduced below.

Reagents:

(a) Paradimethylaminobenzaldehyde, 2 gm. in 100 c.c. of 95 per cent alcohol.
(b) HCl, 600 c.c. concentrated plus 200 c.c. water.
(c) Chloroform, U. S. P.

Method:

To 5 c.c. of the test solution add 0.5 c.c. reagent (a) and 1 c.c. reagent (b). Place in boiling water bath for 20 seconds, shaking vigorously, then place in ice water ½ minute, and extract with 1 c.c. reagent (c). Comparison is made with standards made in the same way.

* Manufactured by the DuPont Cellophane Co., Buffalo, N. Y.

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VITAL STATISTICS

LOUIS I. DUBLIN, PH. D.

Post-Sanatorium Histories of Tuberculous Cases—The present study is a report of after-histories of 7,000 patients discharged from two state sanatoriums. The largest group of men in both institutions were skilled workers and the largest group of women, housekeepers. The age at admission ranged from 10 to 60 years.

At the end of the 5th year after discharge, there were complete records for 190 minimal, 318 moderately advanced, and 57 far-advanced cases. Seventy-two per cent of the patients in the minimal stage worked the entire 5 years and 8 per cent worked continuously after the first year. The moderately advanced cases reported 69 per cent working for the 5 years and 8 per cent working after the first year. The far-advanced cases showed 46 per cent working the entire period and 2 per cent after the first year. Only 7 per cent of the far-advanced cases did not work at any time during the 5 years.

After 10 years, there were living 31 minimal, 63 moderately advanced and 10 far-advanced cases. Of these, 58 per cent of minimal, 68 per cent of moderately advanced, and 33 per cent of far-advanced worked the entire period.

Fifteen years after discharge, 62 per cent of the minimal cases were living, and 82 per cent of these were known to be working. Of the moderately advanced cases, only 30 per cent were living in the 15th year and 78 per cent of these were known to be working. The far-advanced cases died very rapidly; in the 15th year only 8 per cent were alive.

Women who entered sanatoriums between 20 and 29 years of age in the minimal stage showed the best survival rates. In both the minimal and moderately advanced stages, women under 20 died more rapidly than men of the same age. For women already far-advanced when entering, the ages 30 to 39 seemed most favorable. Age was a more direct factor with men. Males in the moderately advanced stage had less chance of living if in the age group 20 to 29 than if under 20 or between 30 and 39 years of age.

The length of sanatorium treatment directly affected far-advanced cases and moderately advanced for the first few years after leaving the sanatorium but the effect on minimal cases was not so direct. Weight was shown to be a positive factor in the history of tuberculous patients after leaving the sanatorium, those gaining most while in the sanatorium having the best chance of living for a long period. No definite relationship was shown between nativity and length of life in tuberculous patients.—J. S. Whitney and B. A. Myers, *Am. Rev. Tuberc.*, 691: 701 (May), 1930.

Marriage and Divorce Reports: 1929—

Arizona—During 1929, there were 7,405 marriages performed in Arizona as compared with 6,400 in 1928, representing an increase of 1,005 or 15.7 per cent. The increase is attributed to the fact that the marriage laws in California now require 3 days notice to be given before issuing a marriage license and many residents in California go to adjacent counties in Arizona to be married. This was noticeable in Yuma County where there were 274 marriages in 1926 and 2,190 in 1929.

There were 1,085 divorces granted in

Arizona in 1929 against 1,062 in 1928, an increase of 2.2 per cent. There were 24 marriages annulled in 1929 compared with 19 in the preceding year.

Minnesota—Minnesota has reported 24,109 marriages for 1929 compared with 23,249 performed in 1928, an increase of 860 or 3.7 per cent. There were 8.7 marriages per 1,000 population in 1929 against 8.5 in 1928. There were 2,861 divorces granted in 1929, representing an increase of 0.6 per cent over the preceding year. The number of divorces per 1,000 population was 1.037 in 1929 as against 1.045 in 1928.

Washington—The number of marriages for 1929 in Washington increased 4.5 per cent over 1928; there were 19,685 marriages performed in 1929 and 18,833 in 1928. Divorces, however, showed a decrease of 1.5 per cent from 4,554 in 1928 to 4,486 in 1929. Annulments increased from 58 in 1928 to 64 in 1929. The number of marriages per 1,000 population was 12.2 in 1929 against 11.9 in 1928, and the number of divorces was 2.78 per 1,000 population in 1929 against 2.87 in 1928.

Utah—The number of marriages in Utah in 1929 was 11.6 per 1,000 population compared with 11.0 in 1928. The actual number of marriages performed was 6,286 in 1929, representing an increase of 7.6 per cent over 1928. There were 1.88 divorces per 1,000 population in 1929 against 1.92 in 1928. The number of divorces was 1,016 in 1929, a decrease of 6 or 0.6 per cent since 1928.

Vermont—The Department of Commerce has announced that there were 2,712 marriages performed in Vermont during 1929 as compared with 2,997 in 1928, a decrease of 9.5 per cent. The marriage rate per 1,000 population was 7.7 in 1929 against 8.5 in 1928. There were 406 divorces granted in the state in 1929, an increase of 2.5 per cent over 1928. The divorce rate per 1,000 population was 1.15 in 1929 and 1.12 in 1928.

Connecticut—Connecticut reported an increase of 5.6 per cent in marriages in 1929 over 1928, the number performed being respectively 12,303 and 11,650. There were 1,221 divorces granted in 1929 as compared with 1,276 in 1928, a decrease of 4.3 per cent. The marriage rate for 1929, 7.2 per 1,000 population, was higher than that for 1928, 7.0; the divorce rate fell from 0.77 per 1,000 population in 1928 to 0.72 in 1929.—

U. S. Bureau of Census, *Preliminary Reports on Marriage and Divorce: 1929.*

German Cancer Statistics—During the period 1923–1927, 185,600 persons died of cancer in Prussia; of these 81,200 were men and 104,400 were women. The digestive organs were involved in 129,500 persons; reproductive in 26,700; respiratory, 5,700; urinary organs, 3,975; and in only 1,990 the external covering of the body. About 2 per cent of the cases were in organs of sense, the nerves, bones and joints. No reference to site of cancer was given in from 4 to 5 per cent of cases. Involvement of digestive organs was about 6 per cent lower in females than in males; cancer of respiratory organs was a little lower in females than males and cancer of the urinary organs was only a trifle more than two-fifths of that of the male sex. In cancer of the reproductive organs, women presented about 15 times as many fatal cases as men.—*Med. Off.*, 43: 285 (June 21), 1930.

Population Decreases in German Cities—From 1900 to 1927, there was a rapid decrease in the excess of births over deaths in all the large German cities. Berlin had an excess of deaths over births; in 1900, Berlin's excess of births over deaths was 7.7 per cent and in 1927 the excess of deaths over births amounted to 1.4 per cent. In Munich, the capital of Bavaria, the excess of

births over deaths in 1900 was 10.6 per cent; then there was a downward trend, until in 1927 the low point of 0.9 per cent was reached. Only slightly better were the reports from Dresden with 1.2 per cent, Hamburg with 1.4 per cent, Frankfort-on-Main and Magdeburg with 1.6 per cent, Altona with 1.7 per cent and Leipsig with 2.0 per cent. In the remaining large German cities, the figures were somewhat higher but in few was the excess of births over deaths above 10 per cent, whereas in 1900 the percentages ranged from 15 to 20, and in one case, 34 per cent.—*J. A. M. A.*, 94: 1856 (June 7), 1930.

Body Weight and Certain Causes of Death—High death rates from the degenerative diseases among overweights cause a marked reduction in their life expectation. Persons who are underweight, on the other hand, have high death rates from the respiratory diseases, but this unfavorable feature is usually balanced by their low death rates from the degenerative diseases. Although these general observations were made many years ago, there has been little extensive information regarding the mortality from the important causes of death in various weight groups. Fortunately, records of the Union Central Life Insurance Company, made available to the Statistical Bureau of the Metropolitan Life Insurance Company some years ago, have made possible an analysis of this kind. The following represents a summary of the more important results of the investigation recently published in *Human Biology*, May, 1930.

Taking the death rate of the normal weight group as 100 per cent, it was found that overweights, as a whole, had a mortality from heart disease 151 per cent of the average. Similarly, the death rate of overweights from nephritis was 172 per cent of the normal; from arterial diseases, 165 per cent; from cerebral hemorrhage, 157 per cent; and from cancer, 111 per cent. There were appreciable excesses in the death rates among overweights from angina pectoris, influenza, paralysis, appendicitis, cirrhosis of the liver and typhoid fever. The accident and suicide death rates among overweights were also higher than the average. Underweights, on the other hand, show generally lower death rates from the above causes. The mortality from heart disease was only 81 per cent of the average; from nephritis, 77 per cent; from arterial diseases, 74 per cent; from cerebral hemorrhage, 70 per cent; and from diabetes, only 64 per cent. The mortality from cancer among underweights, as a class, was approximately the same as among normals.

Of the diseases which showed high death rates among underweights, tuberculosis stood first by a wide margin. As a group, their mortality from this cause was 202 per cent of the normal, but among those 15 per cent or more underweight it was 291 per cent. The death rate from pneumonia was also high among underweights. As a class, their mortality from this disease was 111 per cent of the normal, but it was even higher among those who were extremely underweight. No other important disease caused a relatively high death rate among underweights.

It would seem that the high death rates among overweights from the degenerative diseases is largely due to the burden of work put on the heart, kidneys and blood vessels by the extra body bulk. Overweight is often due to the dietary habits and the mode of life of the individual and such overweight can be modified with great benefit to health and longevity. Taken altogether, underweight, biologically, seems to be an asset. It represents the most efficient type in respect to metabolism.

The present study, then, confirms the previous observation that persons who approach the mean of build or weight

are best suited to withstand the hazards of life. The greatest problem today in the field of public health is to keep down the mortality in middle and later life, and it is not unlikely that public appreciation of these facts regarding body weight may help in its solution.—*Stat. Bull.*, Met. Life Ins. Co., 11: 4–6 (June), 1930.

The Causes of Neonatal Deaths—A study of 800 cases of death within the first 28 days after birth has been made in Glasgow. In this series 71 per cent of the infants died within 7 days. Of the remainder, 18 per cent died during the second week, 8 per cent during the third week, and 3 per cent during the fourth week.

The two main groups of causes of death among new-born infants are injuries or disturbances due to delivery and illness or infection. In this series there were 540 cases of asphyxia neonatorum in the first group, 140 mature and 400 premature. In 51 of them, some pneumonic consolidation was found. Many of these showed birth injuries; 146 had gross intracranial hemorrhage, and 121 had tears in the dura. Sixteen of this group showed mental anomalies and 15 of them had syphilitic mothers.

Generalized septicemia was found in 120 infants, often in association with pneumonia. Pneumonia was the most common lesion, appearing in 197 cases, and in practically two-thirds of all non-asphyxial or atelectatic cases. Infections of the gastrointestinal tract were rare in this series even after a history of diarrhea and vomiting. One premature infant had appendicitis associated with generalized septicemia. Peritonitis was present in 21 mature and 23 immature babies. One child had jaundice due to obstruction by a congenital band and two had splenomegaly.

There was gross intracranial hemorrhage in 161 cases, 86 per cent of whom died within the first week and 36 per cent during the first day. Twenty cases showed some form of infection while the remainder died from asphyxia and atelectasis. Meningitis occurred in 33 cases, most of the infants dying between the 5th and 13th day. It was associated with septicemia in 29 cases and with pneumonia in 12 cases. There were 17 examples of abnormality of the central nervous system.

Cellulitis was found in 19 mature and 10 premature infants and swabs revealed streptococci in 10 cases, staphylococci in 7 and coliform bacilli in 3 cases. The 6 cases of pemphigus included were part of an epidemic of 15 cases of whom 7 died from general sepsis. There were 30 cases of thrombosis; in 11 of these the mother had some form of toxemia. The Wassermann reaction was positive in 26 cases. Congenital syphilis is not a common cause of neonatal deaths.—*Lancet*, 1: 1032–1034 (May 10), 1930.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C. E.

SANITATION OF "PULLMAN CITIES" AT SHRINE CONVENTION

Toronto, June 9–12, 1930

J. ROSS MENZIES

District Engineer, Department of Pensions and National Health, Montreal, Canada

WHEN it became definitely known that the 1930 Convention of the Masonic Shrine would take the form of an International Peace Celebration at Toronto, Canada, the various official bodies concerned took measures to maintain a high standard of sanitation at the temporary living quarters provided by the Pullman cars to prevent outbreaks of communicable diseases. When consideration is given to the possibilities of such outbreaks, where representatives are gathered from all parts of Canada, the United States and adjacent countries, the necessity for such action is readily apparent.

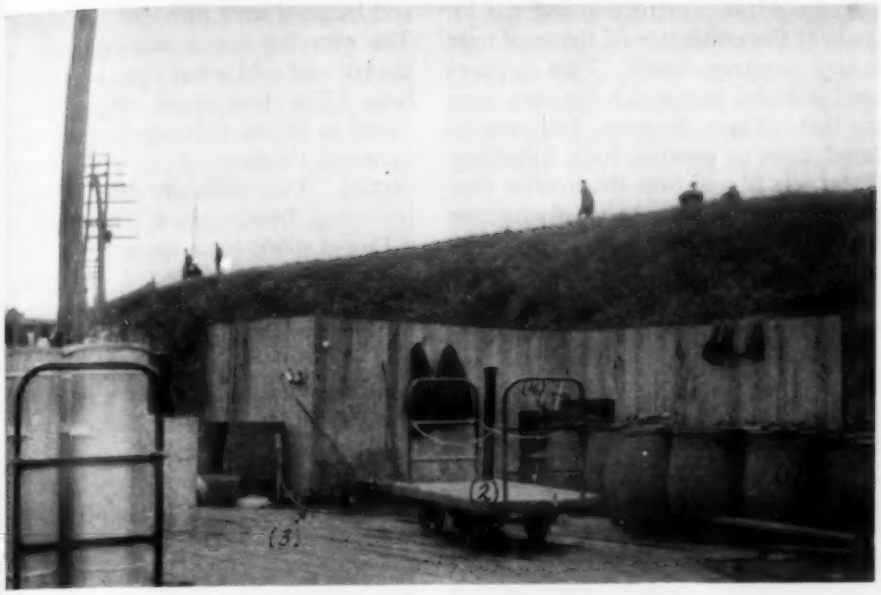
Experience with a similar convention at Miami, Fla., and all other information and data on this particular phase of sanitation were reviewed. There then were held two meetings, one in April and the other in May, to consider in detail the sanitation of steamships in local waters and the sanitation of the two concentrated areas wherein the Canadian National and Canadian Pacific Railways proposed to establish two Pullman cities.

The groups coöperating in these meetings included the Department of Health, Toronto; the National Department of Health of Canada; the Commission of Parks, Toronto; the Departments of Works and of Street Cleaning, Toronto; two Shrine committees, and the two railroads involved. The representatives of these groups worked out the general plan of procedure which is explained here in more detail.

Steamships to be used in lieu of hotel accommodations were required to obtain their drinking and culinary water from safe shore sources. Such vessels had to be equipped with retention tanks for raw sewage, which was not allowed to be dumped within ten miles of any water works intake, and then only after having been boiled for 30 minutes. The application of the regulations regarding vessel sewage disposal was obtained with the coöperation of the U. S. Public Health Service.

Representatives of the railways agreed to make adequate provision of men and materials so that difficulties experienced at Miami would not be repeated. Precautions included screening of sewage, protected covering between toilet outlet and sanitary can, and provision for disinfection of sanitary equipment and grounds around disposal sheds and cars. The Toronto Department of Street Cleaning arranged for continuous removal of garbage from the coach yards.

Both the Canadian National and the Canadian Pacific Railways erected



Sewage Disposal Yard Showing: 1. Sewage barrels. 2. Trucks used for transporting cans. 3. Hose connection for washing cans. 4. Chloride of lime barrels. 5. Entrance to septic tank. "Fez City" (C. P. R.).

buildings containing shower baths, rest rooms, barber shops, beauty parlors and telegraph and telephone facilities. Special fire and police protection was provided in the yards.

"TEMPLE PARK" COACH YARD, CANADIAN NATIONAL RAILWAY

In this yard, at the south end of Spadina Avenue, water for drinking, culinary, washing and sanitary purposes was supplied through hydrants spaced at regular intervals throughout the yards and connected to the city water lines. Standard hose coupling connections were used in attaching the service hose to the hydrants. The filling end of the hose was cut off square and when not in use was protected by a metal cylinder, with a closed end, which fitted snugly over the hose.

Artificial ice was used, and was stored in a special ice house at one side of the yard until needed. Service men were supplied with white uniforms and some had white rubber gloves. The ice was transferred to the cars on flat baggage trucks and, when broken up, was carried into the coaches in galvanized iron pails.

As the toilets in the cars were to be used, special provision had to be made for the collection and disposal of sewage. Old carbide cans with the tops cut off and a handle attached were used. These had a useful capacity of about 7 Imperial gallons. Connection was made between the cans and the toilet outlets by means of stove pipes which in turn were provided with lugs to facilitate their attachment to the cars with wire. A metal lid for the cans, with a hole through which the pipe passed, was kept in position while the cans were in use. Solid metal lids were used for covering cans while they were being transported to and from the disposal shed on trucks propelled by hand or by a small motor. The cans were covered by a white canvas sheet while in transit.

The disposal shed was of frame and

galvanized iron construction and was located at the north side of the yard over a city sanitary sewer. Two hoppers were provided into which the cans were emptied. These hoppers had special flared tops to prevent back splashing. Water jets played over the interior continuously and another jet discharging upward in the hopper and controlled by a foot valve was used in washing out the cans as soon as they were emptied. The cans were then sprayed with a disinfectant by means of a compressed air gun and were then ready for use once more. A special screen was provided, about 2½′ below the hopper mouth, to intercept bottles and other large articles which would be liable to clog the sewer. A 2″ pipe connection was also made to the sewer and liberal quantities of water were discharged into it from time to time to assist in washing away solid material. Disinfectant was sprayed freely around the disposal shed and on the trucks used for transporting cans. To assist in the absorption of waste water and spillage from sanitary cans, about 3″ of gravel and sand were placed between the rails and the concrete walks and this was raked or turned over as occasion demanded.

Watering cans were provided for spraying the ground around coaches but it was not found necessary to use much disinfectant in this way.

Special temporary buildings were provided for shower baths. These were of frame and galvanized iron construction. Water was heated in a large tank connected to the yard steam lines, and the hot water was kept in constant circulation by a centrifugal pump. In the women's section, the showers were divided into two parts by waterproof curtains, the outer compartment being supplied with a bench and used as a dressing room. Mirrors were hung in the aisle and attendants distributed soap and towels. In the men's section, there was only one compartment to a shower and benches were provided in the aisle. The spraying device was connected to the hot and cold water pipes by a rubber hose. The hose used originally was found to be too light, and some trouble occurred because it became disconnected. This difficulty was overcome by using heavier hose. A charge of $.25 was made for a shower.

Garbage was collected in covered metal cans and transported on trucks to an enclosed yard where it was sorted and dumped into city wagons. These were removed to the city incinerator by the city street cleaning department on a schedule of continuous service.

Toilet and rest rooms were located in the administration building at the eastern end of the yard; fire hydrants were provided throughout the yard and chemical extinguishers were also available. In addition, city fire alarms were placed in the yard. Barber shop, beauty parlor, lunch counter, information bureau and taxi service were all available within the yard. Electric light standards supporting two lights with reflectors were located at regular intervals along the concrete walks and provided ample light.

At the "Temple Park Annex" coach yard of the Canadian National Railway, everything was handled in the same way as in the main yard with minor exceptions.

Showers, toilets, wash rooms and an information bureau were to be found in a building at the south side of the yard. A disposal shed similar to that in the main yard, but with only one hopper, was placed at the east end of this building, and a latrine for the use of employees was located at one end of the disposal shed. This was supplied with sanitary cans which were removed from time to time, through a flap door, by the disposal shed attendant to be duly emptied and disinfected.

The walks in this yard were of plank and were located between alternate rows

of cars. Between rows not occupied by walks a narrow gauge track was laid, with turntables at convenient points, and small trucks, pushed by hand, were used in transporting ice and sanitary cans. Water hydrants were located on temporary pipe lines laid on the surface of the ground and were nearly at ground level. They were equipped with steam hose couplings for the ready attachment of service hose.

Considerable ingenuity was displayed in this yard in connecting sanitary cans to toilets. Stove pipe elbows were found very useful in some cases.

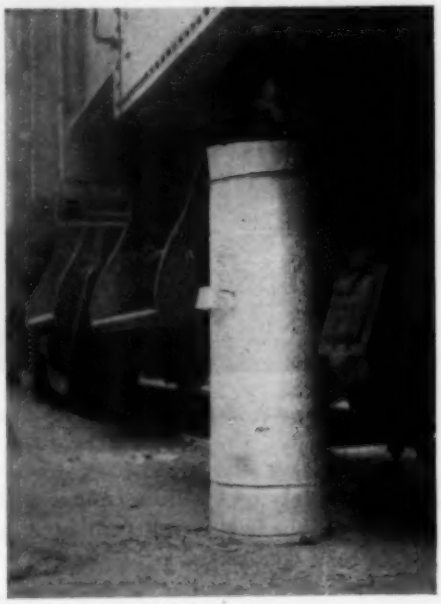
Ninety-seven coaches were located in this yard and 45 men were employed to care for them. Seven men supplied water, 8 supplied ice, 19 acted as sanitary men, and 11 were engaged in cleaning the yard. There were 36 shower baths, 24 being for men and the remainder for women. Five fire hydrants were located in the yard and a 25-gallon chemical fire extinguisher was also available in addition to small ones in the coaches.

There were 3,000 sanitary cans provided to supply the two Canadian National Railway yards and 2,400 pipe connections for these cans were also available.

TEMPLE PARK AND TEMPLE PARK ANNEX ARRANGEMENTS

Equipment for supplying water and ice was apparently quite adequate with the exception of rubber gloves for the men and metal protectors for the water hose when not in use.

The supply of sanitary cans was ample but during the early stages of the convention some difficulty was encountered in making satisfactory connections between the cans and toilet outlets. This was due to many of the outlets leaving the cars on a slope. By using tinsmith's snips and, in some cases, pipe elbows, this difficulty could usually be overcome. In a few cases where toilets discharged directly over wheels and trucks, it was quite impossible to provide satisfactory means of collection. Constant supervision was necessary to discover toilets which had not been supplied with cans. In many cases the outlets were very difficult to locate, but,



Sanitary Can in Position, "Fez City"
(C. P. R.)

after once being used, it was easy to find them and provide cans.

Owing to the heavy discharge of liquids from dining cars these were a continual source of trouble, and larger collection vessels were found very useful. A plentiful supply of dry sand and gravel was also of considerable assistance.

Disinfectant was used freely around the disposal shed, on the trucks, and in a few cases around the coaches. At no time during the convention was any objectionable odor noticeable in the yards, nor were any flies seen.

On June 10, a heavy rain caused some difficulty due to the increased use of toilet facilities and unpleasant working conditions. During the remainder of

Sewage and Garbage Disposal Yard, "Fez City" (C. P. R.)

the convention the weather was fair and moderately cool and no trouble was encountered in keeping everything in a satisfactory condition.

As soon as the coaches were removed, the yard was cleared of rubbish, garbage, and cans, and the tracks were sprayed with disinfectant.

"FEZ CITY" COACH YARD, CANADIAN PACIFIC RAILWAY

This yard, located at the south end of Bathurst Street, was constructed expressly for the parking of coaches used as living quarters during the convention, and is to be torn up when no longer needed.

Another View of Sewage Disposal Yard "Fez City" (C. P. R.)

Hydrants, connected to the city water supply, were located at regular intervals throughout the yard, and steam hose couplings were used on the hydrants and filling hose for ease in coupling them. The filling end of the hose was not provided with any attachment, nor was it protected in any way when not in use.

Ice was stored at the side of the yard in a refrigerator car and, when required for use, was transported to the cars in metal wheelbarrows painted white. Galvanized pails were used to carry broken ice into the cars. The service men were supplied with white uniforms and white rubber gloves.

Garbage and rubbish were collected in open end carbide cans from the yard. From time to time these containers were taken to the disposal yard and emptied into city garbage wagons to be disposed of at the city incinerator.

A special corrugated sheet metal building was constructed and equipped with two compartment showers. The outer compartment was arranged for a dressing room and contained a chair. The walls and doors of the showers were also of sheet metal. Attendants supplied towels and soap, a charge of $.50 being made for the accommodation provided. Toilets, latrines, wash basins, and a barber shop were also located in this building. The section reserved for women was equipped with toilets, wash basins, showers and a sitting room.

To provide toilet and bath facilities for porters employed on the cars, an old box car was removed from its trucks, reconditioned and fitted with similar conveniences, the effluent from the baths and toilets being discharged into a city sewer.

Sewage disposal cans, 11″ in diameter and about 35″ long, were specially constructed for the collection of sewage from the cars. A 6″ ring of galvanized metal, the same as used in the cans, fitted into the top of the cans, and a heavily oiled cloth was fastened to the inside of this ring. This cloth was wired around the toilet and waste pipe outlets when the can was in place. Handles were also fitted to the cans for ease in handling. On the side of the tracks where no walks were provided, 10″ planks were nailed to the ties and provided a level base for the cans. Close fitting metal covers were placed on the cans when transporting them to and from the disposal yards on trucks hauled by a small motor. The contents of the cans were emptied into 50-gal. wooden barrels provided with covers which could be clamped tightly in place. These barrels were then removed by truck and emptied into a city sanitary sewer. The sanitary cans were washed out with water and this water was dumped into a septic tank which overflowed into a city storm sewer. After washing, the cans were disinfected, the covers replaced, and they were ready for use again.

Between alternate rows of coaches, walks were built up of clay and finely crushed rock, enough of the latter being included to provide good drainage. Electric lights were strung on wires supported by wooden poles located in these walks. Two stationary locomotives furnished steam for the coaches and hot water for the showers.

At the entrance to the "city," two large tents were located, one being used as a lunch counter, and the other as an information bureau, telegraph office, and express office. A frame administration building was located on an elevation at the western end of the yard.

There were 328 coaches, including dining cars, located in this yard, requiring extra men.

COMMENTS ON "FEZ CITY"

The type of cans used in this yard seemed to be more easily attached to the toilet outlets than were those used by the Canadian National Railways. This was particularly true in the case of sloping outlets, the advantage being the

larger opening provided. In some cases, where outlets extended considerably below the coaches, shorter cans were necessary. The same difficulty with regard to toilets not being provided with cans was encountered in this yard as in the Canadian National Railways and constant supervision was necessary to locate and remedy the oversight.

No undesirable odors were noticed throughout the yards at any time, and very few flies were seen.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M. D., AND LEONARD GREENBURG, PH. D.

Occupational Skin Diseases from the Biological Point of View—The author has devised a set of routine eczema tests of a number of substances known to cause eczema and has applied them to working men in various trades with very practical results. These conditions are either due to congenital sensitivity or, as is most frequently the case, a sensitivity developed through previous contact. Such contact may not necessarily be directed to the skin but may come from absorption from another place as from the mouth or the gastrointestinal tract, or by intravenous injections. The process is essentially an allergic one, but does not seem to lend itself to the demonstration of specific antibodies.

The author's investigations have suggested the best prophylactic procedure of occupational eczema to consist in routine testing with the various eczema tests, choosing especially the substances with which the worker may come in contact. Any new employee who gives clearly positive reactions should not be employed where the given industrial exposure may occur. Where the harmful substances are known in the industries an attempt should be made to replace them. In the end, only those workers whose skins show a negative reaction to the given eczema tests should be allowed to come in contact with them.

In a practical way, the method used in a machine shop showed that a certain rust protector was the cause of eczema and with its elimination the eczema ceased.

Where the eczema is caused by a sensitization it should be possible to desensitize the patient and thus avoid a relapse. This was successfully done in the case of eczema due to oatmeal. However, much more work has to be done along this line. There is hardly a manufactured product which cannot cause an eczema, and these are becoming more numerous in our increase of industrialization.—Prof. Bruno Bloch (Zürich), *J. State Med.*, 38, 7: 373–382 (July), 1930.

What Protects the Skin Against Light?—The author concludes, as a result of many experiments, that it is the thickness of the horny layers of the epidermis which protects against the effects of ultra-violet light rather than the deposition of pigment which occurs in the deeper layers of the epidermis (stratum Malpighi). Thus, the negro may not be much more protected than the white, at least until a thickening of the horny layer has occurred.

The conjunctiva of the eye is known to be very sensitive to light rays, and it was found in the case of a white rabbit to be 200 times more sensitive than that of its non-pigmented skin.

The marked light protection of the

horny layer depends somewhat upon the dissemination of light through a cloudy medium, but principally upon absorption. The absorption substances which, as building blocks of keratin present, are aromatic aminoacids such as phenylalanine and tyrosin. These absorb the erythema-productive ultra-violet rays just as strongly as quinine. Likewise cystin plays a not unimportant rôle in light absorption.

The function of pigmentation, which occurs in the deeper layers of the epidermis, which is also an excellent ultraviolet filter, is to act as a protector to the underlying connective tissue. Thus, after the raying of a spotted pigment area of skin one finds that under the pigmented spots the connective tissue is quite intact, while under the non-pigmented epidermis there is a great degree of destruction. "The pigment layer is therefore the sunshade for the cutis, just as the horny layer is the sunshade for the epidermis." It is very probable, also, that the pigment absorbs heat rays, thus protecting the body from an undue amount of warmth entering from without, although this still needs exact investigations and confirmation. — G. Miescher, M.D. (Zürich), *J. State Med.*, 38, 7: 387–391 (July), 1930.

Natural Gas—The gas bearing sands, so far as is known, have probably always stored natural gas. In 1821, the first gas well in the United States was drilled in Fredonia, N. Y., and three years later, residents were able to use it for illuminating purposes. The first gas well in Pennsylvania was drilled inadvertently in 1840, when salt water was being sought. The boundaries of the great modern fields are in Louisiana, Texas, California, and Oklahoma. Piping to outlying territories began in Pennsylvania about 1880. Now pipelines lead to Northern Alberta, Atlanta, Denver, while two lines are now proposed for Chicago. The dream is that a network of piping will eventually lead natural gas to all populous centers. An important by-product is gasoline.

Something of the growth of the industry can be seen in the statement that in 1906, 885,000 consumers used natural gas; in 1928, the number had increased to 4,366,000, with the prospect of an early addition of more than a million new users through pipelines then under construction.

(There are next discussed the qualities or composition of natural gas, its production, the gasoline plant, carbon black plants, pipeline construction and maintenance.)

In the classification of jobs, all employees are males, and the chief hazards are named. The article ends with a 2-page discussion of potential health-hazards by Carey P. McCord.—*Industry Report*, Retail Credit Company, Atlanta, Ga., V. 6: 67–76 (June), 1930.

Studies in Natural Illumination in Schoolrooms—This is Part III of these studies and concerns the effect of clouds on daylight illumination and on daylight ratios. Parts I and II are contained in *Public Health Bulletin, No. 159.*

While many of the ratios and standards determined vary according to the season, the hour of the day, and the extent of cloudiness, a number of important conclusions, some of which we have already agreed to from practical experience, but some quite new ones, are derived from the study made. (Illustrations, tables, charts and appendices accompany.)—A. F. Beal, Physicist, *Pub. Health Bull., No. 188,* 128 pp., 1929, price 25c. (Supt. of Documents).

Heating and Ventilating in Schools and Factories—The Industrial Health Research Board has published the results of a study by Dr. H. M. Vernon and Mr. T. Bedford. The object was to determine how far panel heating and underfloor heating could be

recommended in factories. It was found that panel heating was highly suitable for factories because it maintained an almost uniform temperature at all levels, but data were lacking as to its physiological effects.

Underfloor heating, adopted in a few schools, seems likely to increase the comfort and efficiency of workers by raising the temperature at foot level instead of at head level. A series of experiments showed that the temperature of schools must not be less than 55° F. for efficiency in manual work such as drawing and writing. A system of underfloor heating was considered the best for such schools, the panel system for other schools. Both methods distribute heat more evenly than hot water pipes or radiators. There is evidence that in workrooms where most of the floor is exposed and the machinery is light, underfloor heating would be suitable, especially in drafty rooms with big doors that often open to the air.—*J. A. M. A.* (London Correspondent), 94, 21: 1712 (May 24), 1930.

Occupational Cancers—Cancer caused by coal tar and coal tar products with the chemical characteristics of the various coal tars found in the United States, tar distillation and uses of tar and tar products are summarized. The occurrences of skin cancer among tar and pitch workers are summarized in previous studies.

The present investigation has included reports from several large American cities and in particular the analysis of 19 cases of cancer caused by tar, treated in the Memorial Hospital, New York, and in the New York Skin and Cancer Clinic. Another analysis has included Cleveland, where 21 cases have occurred chiefly in a dry-battery manufactory. A summary of statistical results and conclusions is to the effect that the arms and hands are the parts most affected, with the head next, and the scrotum least. Cancers were caused in 54 per cent by pitch, in 35.1 per cent by tar, and in 5.4 per cent by tar oil. Gas works' tar and pitch were responsible for 70.2 per cent of the cases, while only 5.4 per cent were due to coke oven tar and pitch; hence the latter is proved much less injurious than the former. It is thought that the presence of olefins in gas works' tar is the cause of cancer. The likelihood of cancer is greatly influenced by the slighter susceptibility to skin cancers on the part of negro workers.

The occurrence of skin cancer among oil workers was likewise studied and a review of 21 cases caused by mineral oils is given in the present investigation. Mule spinners' cancer (cancer of the scrotum) has been all but absent among the cotton textile mill-workers of the United States, in contrast to those of Great Britain. The author argues that the mechanical irritation theory of Robertson is therefore negated since the same types of clothing and other physical conditions are the same in both countries. Hence, the difference must be chemical in nature. As an explanation, it is suggested that the effect of sulphuric acid used in the processing of American mineral oils has a destructive effect on the cancer producing substances of the oil. This strong acid treatment removes olefins and other unsaturated hydrocarbons very effectively. (Tables and bibliographies accompany.)—Imre Heller, *J. Indust. Hyg.*, XII, 5: 169–197 (May), 1930.

Poison Alcohol—In response to a request from Rep. Grant M. Hudson of Michigan to Surgeon General H. S. Cumming for information regarding the toxic properties of wood alcohol and methanol, the Surgeon General submitted memoranda from Carl Voegtlin, Professor of Pharmacology, Hygienic Laboratory, and a statement by Reid Hunt, Harvard Medical School, the latter re-

printed from *Industrial and Engineering Chemistry*, 17, 7: 763 (July), 1925.

Professor Voegtlin replied, in part, as follows:

It has been well established that synthetic methanol has the same type of toxic action as ordinary wood alcohol. The earlier claims that synthetic methanol is less toxic than wood alcohol have been proved to be false. It is true, however, that certain samples of crude wood alcohol may contain some allyl alcohol, which is more toxic than methanol. Methanol is readily absorbed by the animal system when given by mouth. The poison is also taken up through the lungs when animals or man are exposed to methanol vapor in air. Thus it has been shown by experiments on rats and dogs that the total amount of methanol absorbed through the respiratory tract varied from 0.32 to 0.55 gram per kilogram of body weight. Methanol is slightly more volatile than ethyl alcohol and grain alcohol, and there are several records in medical literature reporting methanol poisoning in painters using paints containing methanol. The danger of poisoning would be especially great when the painters work in poorly ventilated or closed rooms.

There are also records in the scientific literature indicating that the repeated administration of methanol or methanol-containing preparations to the human skin may cause methanol poisoning and blindness.

To sum up, it would seem that the indiscriminate substitution of synthetic methanol for ethyl alcohol in the manufacture of paints, varnishes, antifreeze solutions, cosmetics, etc., would involve a serious hazard to the health of people. Certain states in the Union have enacted laws prohibiting the use of methanol in all preparations intended for internal administration.—

Congressional Record, 71st Congress, Second Session, House of Representatives, Thursday, June 5, 1930.

Epidemic of Dermatitis Venenata Due to a Hitherto Undescribed Cause—A very acute watery eruption involving hands and wrists and other parts which may have come in contact with the blood and tissues of certain rabbits, while skinning and dressing them, has been produced in a number of instances in North Carolina. The affliction usually lasts about a week and strongly resembles that due to poison sumach, but is apparently an entirely new affliction.—F. R. Taylor, *J. A. M. A.*, 94, 24: 1916–1917 (June 14), 1930.

Industrial Medicine—It is pointed out that once the needs have been recognized the peculiar and extensive qualifications necessary to become an industrial physician will be readily solved in the matter of preparation and training. Nowhere, at present, can persons combining all of the qualifications be found, so that it is necessary to take likely candidates and to develop these qualities by a suitable course of training (the various qualities are enumerated).—*J. A. M. A.* (Belgium Correspondent), 94, 24: 1934 (June 14), 1930.

A German Film on Atmospheric Hygiene—A film, prepared with the coöperation of experts, among whom was Professor Koelsch of Munich, consists of four parts dealing respectively with atmospheric pollutions, injuries to health caused by dust, the history of the campaign against dust, and the gravimetric and optical processes of the quantitative analysis of dust. The producers have announced that a second film on the same subject is at present in preparation.—*Ind. & Labour Inf.*, Internat'l Labor Office, XXXIII, 12: 426 (Mar. 24), 1930.

Compensation Act to be Extended to Asbestosis—While the fibrosis associated with silicosis is in more or less isolated nodules, asbestos fibrosis is a fine cobweb ultimately permeating the greater portion of the lungs and leaving little sound tissue. A special scheme of medical inspection by experts will be set up to cover this feature. The disease hardly becomes definite before 5 years' work in the industry, and if it is detected early and the man removed from it, compensation will not be necessary. —London Letter, *J. A. M. A.*, 94, 26: 2078 (June 28), 1930.

Industrial Diseases and Compensation—This paper by Dr. May R. Mayers of the New York Department of Labor is too comprehensive for abstracting with justice in the space available and yet it contains so much of value that those who are interested should read it in its entirety.

The discussion upon this paper occupies 18 printed pages of the *Bulletin* and involves the number of occupational diseases reported and features of associated interest as the representative of each state and province was called upon (a number of tables are included representing such reports).

Of particular interest are the discussions regarding the costs of compensating all occupational diseases, from which it is deduced by Mr. Wilcox, Chairman of the Wisconsin Industrial Commission, based on their experience there for some years, that the costs are not over 2 per cent and, in fact, are more nearly 1 per cent of the total costs for all expenditures for accidents. A strong plea was also made by some of the discussants for complete coverage compensation laws for occupational diseases, and the doing away with schedules in which only certain occupational diseases are listed.—*Proc. 16th Ann. Meeting, Internat'l Assn. Industrial Accident Boards and Commissions*, U. S. Bureau of Labor Statistics, *Bulletin 511:* 47–74 (Apr.), 1930.

Occupation and Health—Recent brochures in this "Encyclopedia of Hygiene, Pathology and Social Welfare, Studied from the Point of View of Labour, Industry, and Trades" have included the following:

No. 189: Glass Industry
" 190: Graphite
" 191: Hides and Skins
" 192: Iron, Pig Iron, and Steel Industries
Iron Carbonyl
" 193: Ice-Cream Makers
" 194: Lignite
" 195: Dyeing
" 196: Effort (Strain)
" 197: Electrical Apparatus
" 198: Electroplating
Emetine
Enamels, Enamelling
" 199: Ethylene and its Derivatives
" 200: Forges, Ironworks
" 201: Horsehair, Bristles, and Hair
" 202: Glove Manufacture
" 203: Dock Labourers
" 204: Dusts, Fumes, and Smoke
" 205: Dyes

In Brochure No. 199, the articles for the *Encyclopedia* have been completed through the letter "E." Price of the complete Brochure Edition is $16.00. International Labour Office, Geneva, Switzerland, 1930.

FOOD, DRUGS AND NUTRITION

WALTER S. FRISBIE

The Vitamin A Content of the Liver of Normal Hogs and of Hogs Developing Experimental Rickets—This is a report of experiments planned to study the effect of lack of vitamin D on the storage of vitamin A when the diet was adequate in this vitamin. Since vitamin A has been found in greater abundance in liver than in any other tissues of the animal body livers were chosen.

Pure bred Duroc Jersey fall pigs from 7 different litters were used. They were divided into 2 groups each containing 5 males and 5 females. They were fed on a ration consisting of yellow corn, soybean meal, blood meal, dried skim milk and common salt. The control pigs had access to direct sunlight while those in the rachitic group were kept in pens in the barn. All the pigs in the control group survived the experimental period which was 129 days, while 3 of the pigs in the other group died.

The livers from the rachitic group were smaller, darker red, firmer and tougher than the livers from the controls; the rachitic liver showed 69.23 per cent moisture while the normal showed 69.99 per cent.

In this work rats 28 to 30 days of age and weighing from 30 to 40 gm., were used. The ration, consisting of one-third whole milk powder, two-thirds whole wheat, and salt to equal 2 per cent of the weight of the wheat, was irradiated 40 minutes.

The animals were kept on a vitamin-A-free diet until their weights remained stationary for 2 or 3 days. The rats were divided into 2 groups of 24 each, one group receiving 0.1 gm. of normal liver, and the other 0.1 gm. of rachitic liver.

A table is given showing the weight curves. The rats on the rachitic liver averaged 6.27 gm. per week and those on the control, 4.15 gm. The rachitic hogs consumed approximately 62 per cent more food per lb. of gain and gained less than one-third as much in weight as the control. This points to the possibility that the rachitic animals because of slower growth were able to conserve and store more of the vitamin A supplied in foods.—Rebekah Gibbons and Charlotte B. Barney, *J. Home Econ.*, 22: 491 (June), 1930.

A Paratyphoid-like Infection Due to Morgan's Bacillus—In a series of 49 cases, clinically resembling paratyphoid fever, *B. morgani* was isolated from the feces in all the cases, from the blood in 6 cases and from the urine in 11. It was the only significant organism in the feces. Agglutinins for the strain covered from each patient were present in his serum in significant titers (1 : 40–1 : 2,560). In 21 of the 22 cases where more than one specimen was obtained, the titer increased during the course of the attack. Agglutination tests with other organisms were invariably negative.

Three strains of Morgan's bacillus tested with 537 serums from normal persons and persons with other diseases agglutinated in 5 instances in a dilution of 1 : 20. As none of these serums agglutinated any of the strains in higher dilution than 1 : 20 the high titers observed in our series of cases are apparently the result of a specific reaction.

Examination of the feces of 2,798 healthy adults showed *B. morgani* in only 1.2 per cent. All 44 strains from our clinical cases proved virulent for mice, both on intraperitoneal infection and on feeding.—Leon C. Havens and Catherine R. Mayfield, *J. Prev. Med.*, 4: 179 (May), 1930.

A Comparative Study of Members of the Lactobacillus Genus, with Special Emphasis on Lactobacilli of Soil and Grain—Thirty-six strains of lactobacilli representing strains isolated from soil, grain, fecal material, milk products and dental caries are described. The media used and the methods of isolation are detailed. The fermentation reactions of the organisms upon 20 carbohydrates and related substances, their action in milk, broth and gelatin, and their acid production at four incubation temperatures, are listed.

Agglutination reactions and complement fixation tests of the 36 strains with antiserums of representative strains are also listed, and results compared with fermentation reactions. Lactobacilli isolated from soil and grain did not as a rule ferment lactose. This marks them as a group distinct from *L. acidophilus*, *L. bulgaricus* and *L. odontolyticus*. Of the lactose non-fermenters, 4 types are more or less definitely indicated on the basis of their fermentation reactions.—George A. Hunt and Leo F. Rettger, *J. Bact.*, 20: 61 (July), 1930.

The Antiscorbutic Vitamin Content of Some Preserved Foods—This experiment was conducted to compare the antiscorbutic potency of certain preserved foods with that of the fresh. The foods investigated were canned and fresh grapefruit, packaged dates, canned pimiento, canned cranberry sauce and fresh cranberry. Guinea pigs, weighing 300 to 350 gm., were used as test animals, and the method followed was that of Sherman, La Mer and Campbell (*J. Am. Chem. Soc.*, 44, 165, 1922). The fresh grapefruit was fed as whole fruit and as juice only, and the canned as pulp only, liquor only, and pulp and liquor crushed together.

The protective portion of the canned grapefruit was found to be 2.2 to 2.8 gm. and the fresh 2 gm., while that of canned pimiento was 2 gm. When compared with the values given by Sherman in his *Chemistry of Food and Nutrition*, it is found these foods have vitamin C potency corresponding to that of lemon juice, orange juice, and raw or canned tomatoes.

Definite values for dates, and cranberries were not obtained since the animals refused to eat large enough quantities for a sufficient time, but the results which were obtained indicate that these foods are poor sources of vitamin C, although the raw cranberry is richer than dates and cranberry sauce.—Grace MacLeod and Lela Booher, *J. Home Econ.*, 22: 588 (July), 1930.

Significance of Colon-Aerogenes Group in Ice Cream. I. Survival of Members of the Escherichia-Aerobacter Group to Pasteurizing Temperatures in Ice Cream—This paper is a contribution to our knowledge of the proper interpretation of the significance of members of the *Colon-aerogenes* group when found in ice cream. It is pointed out by the authors that difficulties are met with in connection with this product which are not present when applied to milk. Some interesting data have been submitted which may be useful in interpreting the significance of members of this group of bacteria in ice cream.

Comparison was made of the effect on viability produced by heating the different cultures in skimmed milk and in ice cream at various temperatures for 30 minutes. It was indicated that the ice cream exhibited a greater protective action. The phase of the work reported

in this paper deals with the survival of members of the *Escherichia-aerobacter* group to pasteurizing temperatures in ice cream. The protective action of various ingredients of ice cream were compared when subjected to heating experiments.

As a result of their experiments, the authors conclude: (1) The critical temperature for *Escherichia-aerobacter* group in ice cream is about 65.50° C. (2) Ice cream has a greater protective action than skimmed milk for members of the *Escherichia-aerobacter* group when heated at temperatures of 60° C. and 62.80° C. for 30 minutes. (3) Thermal death point determinations made with the cultures in the different ingredients used in making ice cream failed to show any marked protective action of any one of the ingredients. (4) The susceptibility of bacterial cells to heat is greatly influenced by their age. Young cells are more readily killed than the older ones. (5) The ability of many strains of *Escherichia-aerobacter* group to survive a temperature of 62.80° C. and even 65.50° C. in ice cream should be taken into consideration when using the colon test as an index of the efficiency of pasteurization. (6) From the standpoint of the reduction in numbers of the *Escherichia-aerobacter* group pasteurizing the ice cream mix at a temperature of 65.50° C. is more desirable than the lower temperature, 62.80° C., which is the more commonly used.—F. W. Fabian and E. W. Coulter, *J. Dairy Sci.*, 13: 273 (July), 1930.

Vitamin-C-Content of Commercially Canned Sauerkraut Together with Some Observations on Its Vitamin A Content—This investigation was made to determine the vitamin C content of sauerkraut as it reaches the consumer. Six brands of commercial sauerkraut were used in the study of vitamin C. The protective method was used with guinea pigs as the experimental animals. Levels of 7½, 5 and 2½ gm. were employed.

Considerable variation was found in the 6 brands. The first brand was outstanding because of the good growth and protection it afforded on the 2½-gm. level. The second brand, while giving good growth and protection on the 7½-gm. and 5-gm. levels, gave evidence of scurvy on the 2½-gm. level. The third, fourth and fifth brands gave evidence of scurvy on the 5-gm. level, while in the case of the sixth brand scurvy was evidenced not only on the 5-gm. level but also on the 7½-gm. level.

The vitamin C content of the second and third brands compared favorably with that of fermented fresh raw sauerkraut (this JOURNAL, 20: 326, Mar., 1930), but the third, fourth and fifth are distinctly less effective while the sixth contains about one-half as much of vitamin C as found in the raw sauerkraut.

Vitamin A was also studied but it was impossible to arrive at any accurate determination of the possible losses of vitamin A during manufacture and canning of commercial sauerkraut. The amount of vitamin A contributed to the diet by either sauerkraut or winter cabbage is negligible.—Bertha Clow, Helen T. Parsons, Ina Stevenson, *J. Agri. Res.*, 41: 51 (July 1), 1930.

Nutritive Value of Corned Beef in Rats—Feeding experiments were made on growing rats, in order to determine the nutritive value of corned beef. The experiments were divided into four groups, as follows:

Group 1: Corned beef and salt mixture
Group 2: Corned beef, salt and vitamin
Group 3: Corned beef, salt and $CaCO_3$
Group 4: Corned beef, salt, $CaCO_3$ and vitamin

The experiments lasted 190 days, and

on the 149th day the animals were paired. The animals of all groups developed without any apparent disorders. Special phenomenons of avitaminosis were absent in all cases.

According to the growth curves, corned beef alone is a complete food only when supplemented with salt mixture. An addition of calcium is not able to make up the deficit but an addition of vitamins greatly improved the growth of the animals, and seems to insure an undisturbed development of the growing rats.

A propagative experiment was made to determine whether the nourishment of the animals of groups 2 and 4 was entirely sufficient from every standpoint, notwithstanding the relatively good development of the animals. The experiment showed that additions to the food were still insufficient, and that with but one exception the animals did not propagate, due probably to a quantitative impairment.

It was not possible to obtain a perfect nourishment even by adding mineral substances and vitamins to the corned beef, although the vitamin addition was of great importance in connection with the corned beef nourishment.—Hans Bischoff, *Biochem. Ztschr.*, 222 Band, 1–3 Heft, p. 191 (June 16), 1930.

PUBLIC HEALTH NURSING

EVA F. MACDOUGALL, R. N.*

Results of Election at the Biennial Nurses' Convention in June—

American Nurses' Association—

Officers—
President, Elnora E. Thompson, Portland, Ore.
1st Vice-President, Jane Van DeVrede, Atlanta, Ga.
2d Vice-President, Mabel M. Dunlap, Moline, Ill.
Secretary, Susan C. Francis, Philadelphia, Pa.
Treasurer, Jessie E. Catton, Boston, Mass.
Directors—1930–1934—
Mrs. Genevieve M. Clifford, Syracuse, N. Y.
Adda Eldredge, Madison, Wis.
Major Julia C. Stimson, Washington, D. C.
Ex Officio Members of the Board of Directors—
Elizabeth C. Burgess, New York, N. Y.
Sophie C. Nelson, Boston, Mass.
Clara D. Noyes, Washington, D. C.

National League of Nursing Education—

Officers—
President, Elizabeth C. Burgess, New York, N. Y.
1st Vice-President, Elsie M. Lawler, Baltimore, Md.
2d Vice-President, Anna D. Wolf, Chicago, Ill.
Secretary, Stella Goostray, Boston, Mass.
Treasurer, Marion Rottman, New York, N. Y.
Directors—1930–1932—
Nellie X. Hawkinson, Cleveland, O.
Carrie M. Hall, Boston, Mass.
Gladys Sellew, Chicago, Ill.
Ex Officio—
Mary M. Roberts, New York, N. Y.
President, American Nurses' Association.
President, National Organization for Public Health Nursing

National Organization for Public Health Nursing—

Officers—
President, Sophie C. Nelson, Boston, Mass.
1st Vice-President, Winifred Rand, Detroit, Mich.
2d Vice-President, Ruth Houlton, Minneapolis, Minn.
Treasurer, Michael M. Davis, Chicago, Ill.

Directors—Sustaining Members—

E. L. Bishop, M.D., Nashville, Tenn.
Haven Emerson, M.D., New York, N. Y.
Gertrude Peabody, Boston, Mass.
Dr. Miriam Waters, Los Angeles, Calif.

Directors—Nurse Members—

Amelia Grant, New York, N. Y.
Katherine Faville, Detroit, Mich.
Mrs. Anne L. Hansen, Buffalo, N. Y.
Florence M. Patterson, Boston, Mass.

Pioneering in Public Health Nursing in Italy—In 1919 the American Red Cross sent a special commission to Italy to study tuberculosis. Mary S. Gardner, " an authority on public health nursing in the United States," went as chief nurse of the section on public health nursing with 15 graduate nurses who had specialized in public health work to assist her.

Miss Gardner and her nurses had a stupendous task to perform. When the World War began, very few nurses in Italy had a training or status anywhere near that of the American or English nurse. Most of the nursing was conducted by the sisterhoods with the a sistance of volunteers—men and women of the servant classes, who did the bedside nursing while the nuns directed the work and assisted some in the operating rooms. High standard schools of nursing were unknown and the hospital authorities did not favor founding any.

When the war came public spirited women in Italy took courses to fit them to care for the wounded soldiers, and these were indiscriminately called Red

*Please send printed matter or other material relating to public health nursing to Eva F. MacDougall, 126 State House Annex, Indianapolis, Ind.

Cross nurses. Their period of instruction required 1 month of hospital work per year, and at the end of 3 years the nurses received diplomas. There were other briefer courses in first aid and care of the sick and wounded. Public health nursing as we know it was unknown. The nuns did some home visiting but nursing care was secondary to spiritual solace and instruction.

The Italian volunteer nurses were devoted to their work, rendered splendid service during the war, and were well organized. At the end of the war this group was pliable and available for reconstruction work along more modern lines in nursing; and " schools adapted to Italian women and Italian needs, specializing in public health nursing, were established by Miss Gardner in Rome, Genoa, and Florence."

The problem was twofold:

1. The creation of a desire for the work, which meant that groups of Italian citizens had to be made conscious of the need for public health work.

2. The creation of a group of workers, which meant that a few carefully selected Italian women must be trained to act as pioneers and teachers.

These courses established in Rome, Genoa and Florence had good committees of public spirited Italian citizens sponsoring them. But there was difficulty finding practical field work for the trainees as most of the doctors would not tolerate " any system of nursing education permitting nurses to visit patients in their homes for follow-up work."

Other attempts had been made before to educate nurses in Italy along the lines of American and British training schools, but the opposition of the medical profession had blocked them.

However, the Italian Red Cross, which before had not recognized the need for a salaried or trained personnel, now decided to start training schools.

In June, 1919, Miss Gardner returned to the United States and Edna M. Foley, Superintendent of the Chicago Visiting Nurse Association, took her place. " During her term of office the school at Florence was reopened and a second course was completed in Rome and Genoa," and positions were found for the nurse graduates of these courses in other Italian cities.

At the end of 1919 the American Red Cross withdrew from Italy after leaving money with which to carry on the nursing schools established. Well organized Italian committees were left to keep up the work and develop it.

Ten years after there is a very different picture. The work of the two American pioneers in Italy has borne wonderful fruit. There is a flourishing nursing school in Florence directed by an Italian trained nurse who also supervises the twenty visiting nurses in the city, graduates of the school. The public health nurses are called " assistenti sanitarie " and their " work radiates out from dispensaries, from their own offices or from the pharmacies where doctors hold their daily consultations. The nurses cover different districts and are assisted in many ways by committees of local importance which show great interest in their work." It is interesting to know that the fear and distrust of the doctors for these new public health nurses has almost entirely disappeared.

Two things have contributed to the present satisfactory status of public health nursing in Italy and to nursing schools established by the Red Cross:

1. The local committees were so well chosen and instructed in the pioneering period that the spirit of the American nurses lived on in the zeal and devotion of the Italian patronesses who fostered what they had begun.

2. The Fascist party emphasizes maternity care. In 1925 a law was passed requiring all Italian Red Cross volunteer nurses to return to Rome for an extra year of training at the Red Cross school.—

A Public Health Nursing Renaissance. *Red Cross Courier,* IX, 13: 12–14 (July), 1930.

Public Health Nursing Legislation—Recognition of public health nursing as a desirable or necessary function of government has only come about in the last 25 years.

Alabama was the first state to sanction the employment of public health nurses by governmental agencies; then New York state made it possible to employ tuberculosis nurses. Ohio, a little later, mentioned nurses in the school health inspection law. In 1911 Massachusetts permitted the employment of visiting nurses and Pennsylvania authorized the employment of school nurses.

The National Tuberculosis Association was one of the first organizations to urge employment of public health nurses.

In 1912 an increased interest began to be felt in visiting nurses and school nurses because of the influence of the newly formed National Organization for Public Health Nursing. Then after the World War the need for rural public health nursing work was recognized and this type of service was emphasized by the American Red Cross.

The Federal Maternity and Infancy Act of 1921 was a potent factor in stimulating interest in state departments of public health nursing. In 1920 there were but 7 state divisions of public health nursing and 11 divisions of child hygiene which were directed by nurses or which employed nurses who had the status of state nursing supervisors. Today there are 9 divisions of public health nursing and 24 divisions of child hygiene, 10 of which are directed by nurses and 14 of which employ nurses to direct the nursing activities of the state.

The establishment of the whole-time county health department has led to the passing of general health laws specifically mentioning the employment of public health nurses.

Now all but 8 states have legislation which pertains to the employment of public health nurses, and some of these have laws sufficiently elastic to provide for needed personnel in public health work.

Eight states have specific laws defining public health nursing credentials, and 30 states have the nurses' requirements defined by their state health departments. Only 4 states specify that all public health nurses shall meet the requirements of the N. O. P. H. N.

Kentucky and New York are the only states in which the division of public health nursing was created by legislative action.

In public health nursing legislation so far experience has taught two principles:

1. Permissive legislation is usually preferable to mandatory laws.
2. There is an inherent difference in the customs, policies and constitutions of the states in different sections of the country. What is legal in one would be illegal in another.

It is believed that "legislation which delegates general authority to a specific department or agency is preferable to specific regulations in the statutes." The statutes are hard to change and salary and requirement schedules change in a growing profession. California's public health nursing law is considered one of the best examples of good legislation.

The Board of Supervisors of any county may employ one or more public health nurses each of whom shall be a registered nurse, possessing such qualifications as may, at the date of her employment, be prescribed by the State Department of Health. Her compensation and duties are to be determined by the Board of Supervisors.

There is a growing tendency to consider public health nursing as an integral part of a whole well-rounded public health program, not an isolated activity. (The growing interest and membership of public health nurses in the American Public Health Association is an indication of this.) They are feeling their responsibility in promoting every phase of the health program.—Pearl McIver, R.N., Public Health Nursing Legislation, *Pub. Health Nurse*, XXII, 7: 372–376 (July), 1930.

EDUCATION AND PUBLICITY

E. G. ROUTZAHN *

Old Dogs and New Tricks—The Extension Service of the U. S. Department of Agriculture furnishes information to farmers and frequently recommends the adoption of new methods.

Even as you and I, the department wondered how effective the "education," once loosed, might be. So 1,646 farmers on the department's mailing list, chosen at random, were followed up. Evidence that the department's recommendations had been adopted was surprisingly encouraging, but even more significant was the discovery that the age of the farmers who changed their minds and methods was apparently not a factor. Here is the tabulation according to age groups of those who adopted the advice.

Age group	Advice adopted
Under 30	76%
31–35	77%
36–40	77%
41–45	79%
46–50	72%
51–55	76%
56–60	71%
Over 61	66%

Farm women were similarly studied. They proved to be less easily influenced to change their household customs than were the men. This was especially noted in the group of women below 31 and above 45 years of age. Why this sex difference? Is it because women are more conservative or more canny; or because farm men have, as the result of rapid advances in the farming industry, become more responsive to suggestions for change?

Health workers are frequently reminded that seed sown on adult minds falls on stony ground and that the older the mind the more rocky it is likely to be. The mind is, no doubt, most plastic during childhood, but age is apparently not a barrier to learning capacity or willingness to change one's habits—in farming!

The Laboratory Method—Various ingenious attempts have been made to teach health by laboratory methods. Nutrition is one of the few health subjects which lends itself well to experimentation conducted or participated in by the student. In the May, 1930, (Columbia) *Teachers College Record*, Mary Swartz Rose describes the methods devised over a period of 10 years for teaching nutrition in the fifth and sixth grades of elementary schools.

The general principles that should be taught, and why, are admirably discussed, but more interesting is the description of the teaching technic employed. For example: White rats kept in the school are fed on various diets. Daily, the children observe the animals, and soon plead that the ones on the poor diet be changed to the good one "because they look so pitiful." The children note not only the effects of diet but learn also to observe the signs of good

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to H. E. Kleinschmidt, Substitute Editor, 370 Seventh Ave., New York, N. Y.

Mr. Routzahn will resume his contributions to the JOURNAL with the November issue.

health, such as glossiness of fur, clearness of eye, pinkness of nose, and general physical vigor. Similarly, they notice the signs of failing health. The school cafeteria furnishes most pertinent object lessons. Milk is "taken apart" in the classroom. A chicken bone is decalcified in a jar of acid solution and serves to demonstrate visually the rôle of calcium in growth.

The article is pregnant with suggestions for those interested in teaching health by the visual and experimental methods.

Publicity That Paid—"Lottie, just past her eighth birthday, was playing house with two little friends. One was the father, one the mother, one the child. Mother at work in the next room heard some talk that sent her into the playroom in horrified, terrified haste."

So began one of Angelo Patri's recent syndicated articles under the caption, "Innocent Children." Parents interested in sex teaching were advised to write to the American Social Hygiene Association for help. Within twenty-four hours, the astonished association was flooded with letters—at this writing they total 3,500. What was the pulling force of this article?—the personality of Patri?—the reputation of the association?—or the simple, intimate account of an experience familiar to every mother? In the May, 1930, *Journal of Social Hygiene*, you will find an interesting editorial which quotes the article, comments on the types of letters received, and explains how the replies were handled.

The Newspaper Man Tells 'Em—The *Indianapolis News* published a series of articles written by its special correspondent, Harold C. Freightner, describing the different departments of state government. Seven of the installments informed the people in interesting style what the state board of health is for and what it does. When a health officer or his assistant talks shop publicly, the listeners are usually few, and the more enthusiastic the talk, the tighter are their fingers crossed. The disinterested observer, "looking in" on the department, has a better hearing. Health leadership is dependent on the appreciation and understanding of the people as to what the health department is driving at. Indiana's achievement is worthy of emulation. The articles are being reprinted in current numbers of the Indiana Health Department's *Monthly Bulletin*.

Can Doctors Write?—Is it true that the doctor is incapable of telling the layman health facts interestingly? Health workers frequently complain that it is. In Toledo, O., the local medical society, through its Education Committee, conducts a medical column in the *Toledo Times*. Experience proves that the column is widely read. About 400 of the published essays have been reprinted in book form, called "Three Minute Medicine," under the authorship of Dr. Louis R. Effler, Director of Education. A preface tells the story of this enterprise and discusses the principles of health education as they involve the public, the press, and the doctor.

Brevity and compactness characterize the essays; none of them exceeds 400 words in length. In almost every article, the layman's taste for the spectacular in medicine is capitalized by citing some scientific curiosity. Then he is adroitly led directly to the meat of the essay, which consists almost invariably of a single idea or concept. Who could resist such captions as: "Osler and Chloroform," "Dr. Murphy and the Murphy Button," "Lawsuits in Medicine," "Catgut," "Manana," "The Great Hernia Mystery," "Sword Swallowing and the Esophagoscope," "Contortionists and Dislocationists," "Ven-

triloquism." Technical expressions do creep in here and there, but on the whole the language is simple, pithy, and picturesque, the sentences are short, and the information is scientifically sound.

In a private communication, the author generously authorizes republication of these essays if sponsored by reputable organizations.

The Health Specialist—Dr. J. H. J. Upham, eminent internist and medical teacher, believes that the public should be taught to regard the health officer as a specialist of a very important branch of medicine. He was speaking to county and city health commissioners of Ohio at their annual conference at Columbus, May 19, 1930. He believes that the people have a deep-seated confidence in scientific medicine and will accord the health officer the same recognition they give a specialist in any other branch of medicine and pay him accordingly. This attitude will also enlist the sympathetic understanding of the private practitioner; corps spirit will prompt the doctor to support the health department and to explain to patients the necessity of health regulations. It will also, Dr. Upham believes, attract good men into the public health field. Dr. Upham's paper was reprinted by the Ohio Public Health Association, 72 South Fourth Street, Columbus, O.

A Notable Exhibit—Practically every one of the 4,400 nurses who attended the biennial nursing convention in Milwaukee, June 9 to 13, visited the Industrial First-Aid Exhibit. It consisted of three compartments; first aid room, office, and rest room. The walls were finished in spotless white, the floors were covered with linoleum. Not only was the equipment complete in every detail necessary to care for injuries, but there were on display objects and models useful in teaching health practices to employees. The shoe exhibit, for example, illustrated types of footwear suitable for workmen in various occupations. On the shelves were books for employees and nurses. Two nurses were in attendance as demonstrators. Record forms were distributed free to visitors.

This unique display owes its success largely to the genius of Johanna Johnson. It was sponsored and paid for by the Employees' Mutual Life Insurance Company, the Cellucotten Products Company, and other manufacturers who contributed special supplies. The exhibit stimulated considerable interest in the industrial nursing project of the N. O. P. H. N.

The Lecturer's Man Friday—The Society for Visual Education announces a new projection apparatus which weighs only 1¾ pounds. This machine is a small stereopticon which uses 35 mm. safety stock film for showing still pictures. It has a capacity of 100 frames or pictures without reloading. It is so compact that it fits easily into the coat pocket. A dozen or more spools of film may be carried in one's other coat pocket if necessary. It projects pictures of a reasonable size in a semi-darkened room. The itinerant lecturer who will not be bothered with undue baggage and accessories will find this a good helper. It is called the S. V. E. Jam Handy Pocket Explainer.

BOOKS AND REPORTS

Handbook of Physical Education—*By Ernest G. Schroeder. New York: Doubleday, Doran,* 1929. 323 pp. Price, $2.00.

The book is divided into two parts. Part I contains ten brief chapters on (1) Objectives, (2) Suggestions for the Instructor, (3) Organizing a Program, (4) Marching, (5) Calisthenics, (6) Games for Outdoors and Indoors, (7) Miscellaneous Activities, (8) Intramural Athletics, (9) Corrective or Medical Gymnastics, and (10) Wrestling. Part II, comprising nearly two-thirds of the total book, is also made up of ten chapters, nine of which are devoted to apparatus work and one to tumbling.

Since this purports to be a handbook of general physical education the reader is likely to be surprised at the disproportionate amount of attention given to formalized activities, such as marching, calisthenics and apparatus work, and the meager treatment given sports and games aside from wrestling. Mr. Schroeder, however, seeks to justify his position by stating on page 127:

> A survey of physical education programs in our high schools has revealed that apparatus exercises as a means of physical education is being neglected in our schools. The tendency seems to be to a program limited to sports and games.

Perhaps also the fact that Mr. Schroeder has been director of the gymnasium at the State University of Iowa for 23 years, during which time he has been a leading figure in the advancement of the Western Intercollegiate Gymnastic, Fencing and Wrestling Association may account in part for this conspicuous treatment. These factors superimposed on his earlier experiences as an expert gymnast and wrestler in Ohio Turnverein circles present a uniform background with which his philosophy of physical education as here expressed is in full conformity.

A very limited treatment of Intramural Athletics, confined to ten pages, and the chapter on wrestling, featuring the holds commonly used in intercollegiate and interscholastic wrestling contests, are the chief deviations from the formal program. The chapters on apparatus work are especially well done, covering a course of progressive lessons on various pieces of apparatus. The chapter on Parallel Bars, for example, containing 54 graded lessons, illustrated and descriptive of the wide variety of standard combinations commonly used on this piece of apparatus, may be taken as typical of the excellent manner in which Part II is done. The objective character of the volume as a whole would be enhanced by definite reference citations and more extensive and annotated bibliographical material.

The book should be valuable to teachers whose work includes the activities treated and for those who cannot afford specialized books for each. It will also be welcomed by those who, with Mr. Schroeder, believe that the formalized activities are an indispensable part of an all round Physical Education program.

F. W. LUEHRING

Mental Hygiene—*Special International Congress Number, April, 1930.* Price, $.75.

This issue of a well known journal cannot be passed by without special mention. As the subtitle shows, it was issued on the occasion of the First International Congress on Mental Hygiene recently held in Washington, D. C. If one had not previously realized the im-

portance of mental hygiene, this issue would surely convince him.

It opens with a chapter by the Editor on "Finding a Way in Mental Hygiene," and the other articles are of the usual high quality which characterizes this publication. There follows a section made up of cabinet size photographs of the officers of the national societies taking part in the Congress. More interesting even than this, is the third section, devoted to the pioneers in mental hygiene. Here we have pictures of practically all of the great men of the past, beginning with Pinel, Tuke and Chiarugi. Accompanying each photograph is a short biography. Ninety-one pages are devoted to book reviews, among which are some of unusual interest.

It would be hard to speak too highly of this volume, for so it is, rather than an ordinary issue of a current magazine. We congratulate the Editor, as well as the National Committee for Mental Hygiene. M. P. RAVENEL

Fundamentals of Bacteriology—*By Charles Bradfield Morrey. (4th ed. rev.) Philadelphia: Lea and Febiger,* 1929. 347 pp. Price, $3.50.

This is the fourth edition of a textbook of bacteriology intended to be used during the first or introductory quarter's work. It is therefore elementary in nature, and does no more—nor less—than its title promises. The author presumes no previous scientific knowledge on the part of the student, and presents each subject in a clear simple manner. About three-fourths of the book is devoted to morphology, physiology, and methods of study. Where details of technic are not given, as in the discussion of single cell methods, references are cited. The discussion of hydrogen ion concentration is especially good.

The last quarter of the book gives a general survey of pathogenic bacteriology, ending with a brief history of the science. There are many illustrations showing cultures and apparatus, and five plates of portraits of famous bacteriologists. There is an adequate index.

As an introductory text this seems quite satisfactory. GRACE ELDERING

Incapacity or Disablement in Its Medical Aspects—*By E. M. Brockbank, M.B.E., M.D., F.R.C.P. London: H. K. Lewis & Co.,* 1926. 120 pp. Price, $2.00.

Medical practitioners in examining persons of both sexes for reports upon their fitness for employment in various capacities frequently have to take part in legal proceedings involving statements as to complete or partial disablements. For this it is very useful to have at hand some elementary information on the law of the subject with opinions from medical and surgical authorities on the effects which injury may have in producing various illnesses The decisions of courts have been consulted in these matters. Discussion of deleterious or dangerous trades, however, has been omitted from the present work.

The book comprises chapters upon the meaning of incapacity, its causes and varieties, the disabled worker's chances of employment, and pension schemes in relation to the employer, the worker, and the insurance companies, with special reference to the National Health Insurance Act.

The main theme of the book is the discussion of the more common causes of incapacity or disablement arranged in alphabetical order for (we have counted them) some 77 afflictions, beginning with Age, Albuminuria, Anemia, Aneurysm, etc., to Thyroid Gland, Tuberculosis, Varicose Veins, and Vertigo. Many cross references are made although the index is brief. We note that, under *mastoid disease*, otitis media is not considered incapacitating for laborious

work, while *pregnancy* in normal women accustomed to hard work may not interfere with manual labor until within a week or so of full time. *Mitral stenosis* incapacitates for laborious work. Good wages ward off *neurasthenia*. Insurance acts should provide for mothers suckling their babies every 3 hours in the interests of the baby.

This well written little volume contains much valuable information in brief form, especially for those interested in prognosis in the afflictions of workers, and is by the author of a previous volume, *Life Insurance in General Practice*.

EMERY R. HAYHURST

Hygiene for Nurses—*By John Guy and G. J. I. Linklater. New York: Wood*, 1930. 212 pp. Price, $1.75.

This book has been modelled on the syllabus issued by the General Nursing Council of Great Britain. The authors have curtailed the description of the communal aspect of hygiene because they think that hitherto too much stress has been laid on it in the teaching of nurses, and have concentrated on the personal aspect, emphasizing especially the hygiene of the new-born and dietetics.

In the chapter on Communicable Diseases, under Smallpox is a good history and exposition about vaccination, but in describing diphtheria not a word is said about either antitoxin or toxin-antitoxin. This is rather a serious omission. There seems to be a little too much emphasis placed on terminal, and not enough on concurrent, disinfection.

Under Personal Hygiene an unusually interesting and instructive description is given of clothing and cloth materials. The chapters on Food and Metabolism, and Vegetable Foods and Animal Foods are excellent. In the appendix also are helpful tables giving the percentages of foodstuffs in different animal, vegetable, and other foods.

There are a few minor details with which one might disagree, but on the whole the book is up-to-date and excellent, and can well be recommended as a text or reference book for nurses. It will give them a public health point of view greatly needed today. It has the added attraction of being well printed and easy and pleasant to read.

EVA F. MACDOUGALL

Rest-Pauses in Industry—*By S. Wyatt, M.Sc., M.Ed. London: H. M. Stationery Office*, 1927. 21 pp. Price, $.50.

This is a review of the results obtained by the investigator, S. Wyatt, M.Sc., under the Medical Research Council, in which there are taken into consideration such features as the best position for a rest spell in the midst of the morning and the afternoon work periods—in which it is concluded that the rest pause should be given at the time the output has just reached its maximum. Likewise if a marked decrease in production again occurs a second pause should be introduced where output again begins to decrease. The length of the suggested rest pause should be such as not to cause the loss of swing or incitement, nor more than enough to dispel the factors which have been impeding working capacity. The amount of rest necessary for complete recovery, the method of using rest pauses, the relation to the nature of the work, etc., with objective and subjective effects, are briefly discussed.

The effect of a rest is particularly beneficial in repetitive work of a monotonous character, with the influence most marked on work requiring the greater activities, also where natural rhythm is upset. Benefits of rests may even be noticeable before the rest occurs.

However, unscientific methods have too often muddled the findings of rest period studies so that a careful investigation of the work itself and a typical

curve of output should be obtained before rest periods are introduced anywhere. The effects are also more favorable with some workers than others, and one rests better when all others are also resting at the same time.

Variation of activities is not stressed here nor does it seem that the investigator has considered the value of the short-intervalled rest pauses that must constantly occur between individual work efforts, from which it is just conceivable that if these were properly regulated they might be more effective than definite rest periods. The ideal day's work is one in which the worker quits fresh, and not, as Sir Thomas Oliver long ago remarked, "so tired."

EMERY R. HAYHURST

Proceedings of the Seventh Annual Short School—*Texas Association of Sanitarians, Edinburg, Texas, December 3–5, 1929.* 107 pp. Price, $1.00.

This seventh proceedings has in it the usual number of short articles on various phases of sanitation. Health education, publicity and administration; garbage incineration; swimming pool and beach sanitation; rodent control; an oyster survey; and the relation of aviation to health are included in the first section.

The second part is devoted to milk. Pasteurization is discussed by Putnam in a very good article. Bovine infectious abortion, T. B. testing, dairy waste treatment, dairy barns and milk houses, as well as water supplies and sewage treatment devices therefor are touched upon.

ARTHUR P. MILLER

Immunity in Infectious Diseases—*By A. Besredka. Translation, Herbert Child. Baltimore: Williams & Wilkins,* 1930. 364 pp. Price, $5.00.

However the author may seek to justify the publication of this book, the reviewer can see little if anything to warrant its presentation. It is essentially a reprint of Besredka's publications without the virtue of having these brought up to date or even commented upon in the light of modern immunology. Approximately half of the book is devoted to a discussion of antivirus and its clinical use, a subject well covered in Besredka's earlier book, *Local Immunization*. There is insufficient new material to pay for the pain of reading 364 pages, rather poorly written, and indifferently translated. The character of the contents, the title, in fact, everything about the work, suggests d'Herelle's book, *Immunity in Natural Infectious Disease*. It is, however, entirely lacking in the charming style, excellent translation and thought compelling contents of that work.

The character of the production is well illustrated by Chapter IV entitled Antistreptococcic Serotherapy. The most recent reference quoted in this chapter is dated 1909 and the concluding statement is this: "All these experiments . . . indicate that henceforth the streptococcus cannot be looked upon as the actual cause of scarlet fever. . . ." While there may be those who share this opinion, their belief is based upon discoveries much more recent than 1909. As science it has little value, as history it is woefully lacking, and since it cannot qualify as good reading material it is difficult indeed to determine its value.

N. W. LARKUM

Health, Public and Personal—*By Ralph E. Blount. Boston: Allyn and Bacon,* 1930. 347 pp. Price, $1.20.

A new edition of this conveniently sized book has appeared. The book is of an elementary character but it was so designed by its author, as in the writing of it he had in mind the fundamental things of public health which a pupil in the higher grades of the elementary schools or in high school ought to know or be taught. The writer shows an up-to-date knowledge of the main facts of

physiology, anatomy and bacteriology, and relates what is said of personal and public health to that knowledge, which is desirable in such a handbook, not only for accuracy of statement, but for student instruction.

The position taken by the writer in regard to what is based on the best knowledge of the day as against the theories of quacks and the pseudo-scientific is one that commends itself to the medical profession and to the trained public health educator; viz., that it is always wise to consult the best medical opinion rather than fly to some fad that may have no scientific or rational basis.

The book is well written, attractively illustrated and is worthy of a place among books listed in the calendar of studies for elementary and secondary schools.

The advice given is generally sound, although some might question, for example, the advisability of telling people when they are wounded to treat the wound with iodine or some other antiseptic. This may be desirable at times but not infrequently the application of antiseptics causes the individual to do nothing more for the wound when something more should be done. Besides, the use of antiseptics may mask the condition if the individual seeks surgical attention.

JAMES W. WALLACE

Lehmann's **Medical Hand Atlases**—*Determinative Bacteriology, Vol. I: Atlas. By K. B. Lehmann of Würtzburg, Germany, and R. O. Neumann of Hamburg, Germany. English translation by Robert S. Breed, Geneva, New York. Seventh German edition, 1930. (Second volume to be published September, 1930.) New York: G. E. Stechert (Alfred Hafner), 1930.* 71 pp. 64 ill. Price, $12.50.

This is the seventh edition of the Lehmann-Neumann *Medical Hand Atlas* issued originally thirty years ago.

The book is divided into three major sections, Bacteriological Technique, General Diagnosis, and Atlas. These three sections include the best bacteriological information available, as well as a series of fine color plates and drawings.

The section of Bacteriological Technique consists of 83 pages of meaty and concise information, microscopical technique, staining solutions, preparation of stained specimens, media preparation and methods of use, animal investigations, bacteriological examination of air, water and soil, and the most important immunological-biological diagnostic procedures are covered thoroughly. Over 2,000 new citations have been introduced, so that the section is replete with references.

The section on General Diagnosis is an introduction to the methods of determining bacteria from the plates in the *Atlas*. In outline, the method consists of using the appearance of the stained organism under a magnification of 1,000 diameters, the macroscopic appearance of gelatin plate colonies, the appearance of the gelatin colonies under a magnification of 60 diameters, and the appearance of the gelatin stab. An example is included showing in detail how bacteria are identified.

The *Atlas* consists of 64 excellent color plates and drawings to be used in the application of the method of general diagnosis outlined above. The authors have used color plates for such objects as the stab, streak and potato cultures; drawings for colonies on plates and photographs for bacterial smears. With this combination illustrations of splendid accuracy are presented throughout the whole book.

The English translation makes this compendium available to a great number of English reading scientists. The print is fine but easily readable. Except for two plates which are bound in upside down, the book is well put together.

G. D. CUMMINGS

Stories of Health and Happiness—*By Elizabeth Blaine Jenkins, with the coöperation of Dr. C.-E. A. Winslow. New York: Merrill,* 1929. 163 pp. Price, $.68.

This little book of attractive stories with quaint illustrations certainly should accomplish something in the way of interesting young children and—quite possibly—older ones as well, in health habits. The ten stories deal with the commonplaces of health education—exercise, food, sleep and the rest—but in a far from commonplace manner.

Fairy tales may be what the old fashioned "health agent" would call them, with a scornful sniff, but if they succeed even in part in inculcating honest-to-goodness health habits and attitudes in the young (not the sort of imitation most adults have), they will have made a real contribution. It may well be that the success of the public health movement of the future will depend largely upon health habit promotion among the preschool and younger school children; and to reach the youngsters one must talk their language.

MERRILL CHAMPION

The Baby's First Two Years—*By Richard M. Smith. Boston: Houghton Mifflin,* 1930. 159 pp. Price, $1.75.

The new revised edition of *The Baby's First Two Years,* by Richard M. Smith, is just the book a pediatrician would like to see in the hands of his young mothers. It does not attempt to discuss the diseases of infants as do so many similar books, but gives clearly and definitely just how a normal infant should act and how it should be cared for.

The definite way in which he expresses the details should be especially praised as a new mother wants to know exactly how many diapers and shirts to buy, at what temperature to have the water, exactly how to wash the baby's eyes, etc. In the diary of "a typical day" at the end of the book, the mother will find every detail of infant care outlined for her. Incidentally the pediatrician who puts the book in her hand will find himself saved many needless telephone calls.

The chapter on "bottle feeding" emphasizes the two main factors in artificial feeding:

1. The absolute necessity of either pasteurization or boiling of milk with preference for boiling
2. Necessity of fitting the formula to the infant; that is, not to feed it by rule of thumb, but only according to the doctor's prescription

I also wish to praise Dr. Smith's definite stand for the 4-hour interval between feedings and the early elimination of night feedings. I find him a little conservative as to the time at which potatoes, butter, and eggs should be introduced into the diet, but the book as a whole is so excellent I will not quarrel with him over a few months.

LUCILLE LIBERLES

Ergebnisse der gesamten Tuberkuloseforschung—*Herausgegeben von H. Assmann, Leipsig; H. Beitzke, Graz; H. Braeuning, Hohenkrug-Stettin; St. Engel, Dortmund. G. Thieme Verlag, Leipzig,* 1930. Vol. 1, viii + 573 pp., 110 figs. Price, M. 42.00, Bound, M. 45.00.

The purpose of this new reviewing periodical is to present at such intervals as the growth of the literature warrants critical summaries of the world's literature upon tuberculosis. The papers in this field are widely scattered in medical journals in various languages and in diverse fields. Significant papers in all phases of the subject are to be included. The subject matter in hand will provide for two volumes, the current one and another to be issued shortly. It is the aim to include the clinical aspects, pathological anatomy, bacteriology, radiology, serology, immunobiology, ther-

apy in all its branches, and the legal and social aspects of tuberculosis. The viewpoints of the scientific investigator and the practitioner are presented.

The first volume contains chapters on the early diagnosis of tuberculosis by Dr. Felix Klemperer, early infiltration by Dr. H. Assmann, healing processes and the detection of healing in roentgenograms in pulmonary tuberculosis by Dr. F. Fleischner, protective immunization against tuberculosis by Dr. B. Lange, the allergy problem by Dr. F. Redeker, the biological bases of the most important non-specific blood reactions in tuberculosis by Dr. G. von der Weth, the detection of the tuberculous and the fight against tuberculosis by Dr. H. Braeuning, the social relations of tuberculosis by Dr. F. Ickert, and the localization and roentgenological demonstration of primary tuberculous lesions in the lung by Dr. S. Engel.

The volume has very complete author and subject indexes. C. A. KOFOID

Getting Well and Staying Well. A Book for Tuberculous Patients, Public Health Nurses, and Doctors—*By John Potts, M.D., with an Introduction by J. B. McNight, M.D.* (*2d ed.*) *St. Louis: Mosby,* 1930. 221 pp. Price, $2.00.

Dr. Potts has written a book that is so helpful to many and so invaluable to a certain class of patients that a second edition is welcomed. The burden of the book is that early diagnosis is usually followed by successful results. It has become a habit to blame the doctor first consulted, usually the family doctor, for his mistakes in not suspecting and diagnosing pulmonary tuberculosis in its earliest and most curable stages. The author very justly points out that many patients are already in a more or less advanced stage when they first seek medical advice.

In his first chapter, Suspecting Tuberculosis, he emphasizes this and draws attention to certain symptoms that should cause any person to suspect tuberculosis: ease of fatigue, irritability, fickle appetite, uncertain digestion, pain or soreness in the chest, poor recovery from "something." Such symptoms are especially important between the ages of 18 and 28. He further emphasizes the importance of "feeling tuberculous," which he apparently applies to the indefinite sense of unease or malaise.

There is only one sure solution of the problem: the lay people must know how to suspect the disease in themselves.

It is a great pity that not more of those who are to become tuberculous in the next few years can have an opportunity to read all this. The section on diagnosis will probably be of more aid to the general practitioner than to the patient, but his references to finding out Who's Who in medicine and referring the patient to the state sanatorium for this knowledge is excellent advice.

Doctors can furnish information only to persons who want to learn. If people want to remain ignorant of the subject and run the risk of paying a severe penalty because of their ignorance, it is their privilege to do so.

Why, asks Dr. Potts, if a boy can read a lesson in his school reader about "Frank and the Bear," should he not read about "Frank and the Mosquito"?

The sanatorium is praised, but attention is called to the fact that the majority of all patients must sooner or later undergo home treatment and they and the family must learn what to do, for recovery involves years of curing. The three arch enemies of the patient are the ignorant family, the officious and ignorant friend and the quack, all described in no uncertain language. Attention is called to the necessity of facing disagreeable facts.

Much of the success or failure of a tuberculous person, provided he has had the advantage of an early diagnosis, depends upon whether he will face the facts like a grown person or act like a child.

There is little to criticise in the book. It might be well to call attention to the value of rest after the noon meal for those undergoing treatment as well as for those who have later returned to work. Such rest is particularly important for those past 40.

It is always a question whether it is a wise policy to write a book for both patient and physician but the author has never lost sight of the patient. It would possibly be a trifle fairer to the doctor if it were mentioned that the "tuberculous feeling" can occur in other conditions but in these it rarely, as the author states, continues so long.

While few states have no state sanatorium, it might, however, be a wise thing to refer patients seeking information in regard to Who's Who in medicine to the National Tuberculosis Association's headquarters in New York. Some would not follow Dr. Potts in omitting taking the temperature at 8 p.m. and the use of practicing diaphragmatic breathing. These criticisms are, of course, of little moment and in no way impair the very considerable value of this book.

LAWRASON BROWN

BOOKS RECEIVED

A COMPILATION OF CULTURE MEDIA FOR THE CULTIVATION OF MICROORGANISMS. By Max Levine and H. W. Schoenlein. Baltimore: Williams & Wilkins, 1930. 969 pp. Price, $15.00.

DICTIONARY OF BIOLOGICAL EQUIVALENTS. By Ernst Artschwager. Baltimore: Williams & Wilkins, 1930. 239 pp. Price, $4.50.

DOCTOR AND PATIENT. By Francis W. Peabody. New York: Macmillan, 1930. 95 pp. Price, $1.50.

THE HEALTHY-MINDED CHILD. Edited by Nelson Antrim Crawford and Karl A. Menninger. New York: Coward-McCann, 1930. 198 pp. Price, $1.75.

CLINICAL NUTRITION AND FEEDING IN INFANCY AND CHILDHOOD. By I. Newton Kugelmass. Philadelphia: Lippincott, 1930. 345 pp. Price, $6.00.

SCHOOL HEALTH PROGRESS AS RECORDED AT THE HEALTH EDUCATION CONFERENCE, SAYVILLE, L. I., JUNE 17–22, 1929. New York: American Child Health Association, 1930. 343 pp. Price, $1.25.

THE BUREAU OF HOME ECONOMICS. Its History, Activities and Organization. By Paul V. Betters. Washington: Brookings Institution, 1930. 95 pp. Price, $1.50.

HISTORY OF HAITIAN MEDICINE. By Robert P. Parsons. New York: Paul B. Hoeber, 1930. 196 pp. Price, $2.25.

A TEXTBOOK OF HYGIENE. By J. R. Currie. New York: Wood, 1930. 844 pp. Price, $8.50.

PROCEEDINGS OF THE 1929 ANNUAL CONFERENCE OF THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS. New York: National Society for the Prevention of Blindness, 1930. 201 pp. Price, $1.00.

LABORATORY MANUAL IN COLLEGE PHYSIOLOGY. By Cleveland Pendleton Hickman. New York: Macmillan, 1930. 116 pp. Price, $1.10.

PERSONAL AND COMMUNITY HEALTH. (3d ed.) By Clair Elsmere Turner. St. Louis: Mosby, 1930. 443 pp. Price, $2.75.

GONOCOCCAL INFECTION IN THE MALE. (2d ed. rev.) By Abr. L. Wolbarst. St. Louis: Mosby, 1930. 297 pp. Price, $5.50.

CROSS-SECTIONS OF RURAL HEALTH PROGRESS. By Harry S. Mustard. New York: Commonwealth Fund Division of Publications, 1930. 230 pp. Price, $1.00.

A CHAPTER OF CHILD HEALTH. (Clarke County and Athens, Ga.) Report of the Commonwealth Fund Child Health Demonstration. New York: Commonwealth Fund Division of Publications, 1930. 166 pp. Price, $1.00.

RECORDING AND REPORTING FOR CHILD GUIDANCE CLINIC. By Mary Augusta Clark. New York: Commonwealth Fund Division of Publications, 1930. 151 pp. Price, $2.00.

THE KEY TO RATIONAL DIETETICS. (New ed.) By Otto Carque. Los Angeles: Author, 1930. 152 pp. Price, $1.00.

SCIENCE IN THE KITCHEN: The Selection, Care, and Service of Foods. A Series of Eight Radio Talks. Pittsburgh: Mellon Institute of Industrial Research, 1930. 82 pp. Price, $.60.

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

Rockford, Ill.—This city with a population of 85,600 reports a resident death rate of 8.7, a birth rate of 17.2, and an infant mortality rate of 48.9. The report is attractively illustrated with charts and graphs carefully prepared, together with a few photographs. A classified financial statement indicates an expenditure of $30,655 by the Health Department during the year.

"Publicity and education of the public is a necessary function of a well organized department of public health." It is noted in the Bureau of Education and Publicity section that 25,190 health pamphlets were distributed, together with 2,600 educational letters and 1,802 birth certificates. There were 205 press articles and 48 lectures recorded, while 132 health posters and 52 charts, maps and graphs were used. It is noteworthy that the health officer devotes 5 pages to the work of the Visiting Nurse Association, a voluntary agency, in order to present a complete picture of nursing service in the community.

Manchester, N. H.—The communicable disease incidence was relatively low during the year. A neighborhood outbreak of diphtheria is discussed and attention is called to the fact that no child who had received toxin-antitoxin previous to the epidemic developed diphtheria, although a few children so immunized were directly exposed. "It is also significant that many parents who in former years had steadfastly refused to have their children treated, not only asked but even demanded immediate treatment."

An infant mortality rate of 93.2 is recorded. Three infant welfare stations report 2,819 babies under supervision during the year, with 14,830 home calls. A birth rate of 16.9 and a death rate of 10.9 are recorded.

Dairies from which milk was shipped into the city were inspected at least once and sometimes many times during the year. It is reported that so many requests for ratings of milk sold by dealers have been received that a schedule has been devised, and if satisfactory, it will be distributed to those who are especially concerned with the care of babies and infants.

New Hampshire—A report of the Tuberculosis Association for the year 1929 shows that the volume of work accomplished has been larger than in any previous year. Seventy-eight clinics were maintained by the association with 298 sessions. There were 5,862 patients under treatment and supervision. This includes 2,780 arrested cases, 680 of which were added this year, and 8,249 physical examinations were given. Besides these clinics 48 school clinics were held when 2,906 children predisposed to tuberculosis were examined and treated. Since 1925, 13,941 possible victims and 400 with symptoms have been examined. Large numbers of undernourished children have been treated and cured. There were 106 children sent to summer camps last year. The association nurses made 21,784 visits.

A campaign for early diagnosis of tuberculosis in children was begun in April. The purpose of the campaign was to instruct the parents and also to teach the children in school. During April 6,500 pamphlets were distributed and $1,100 was spent for posters. It sponsored health clubs for children, health education of industrial workers, and play writing contests. The associa-

tion provided a 2-page bulletin of information regarding the diagnosis and treatment of tuberculosis for the physicians of the state, prepared and published by the National Tuberculosis Association.

The state appropriated $60,000 for the 2 sanatoriums for maintenance and additional beds. During 1928 the Association collected $41,023.75 from Christmas Seals.

Knoxville—A creditable report of 81 mimeographed pages, for the year 1929, shows graphically the work of the bureau of health of the Department of Public Welfare of Knoxville. The table of contents is followed by a concise summary of the organization and special features of the work of different divisions. Knoxville is governed by a mayor and city council, which elect a business manager, who in turn appoints five directors of the following departments: Law, Finance, Public Safety, Public Service, and Public Welfare. During 1929 the city appropriated from public funds slightly less than 62 cents per capita for public health protection.

During the past 3 years the bureau has conducted an extensive study of over 27,000 separate premises in the city, and the results have been recorded and filed. The analyses of these data in preliminary form make this report of unusual interest to administrators. The Bureau of Health, the State Department of Public Health and the Department of Hygiene of the University of Tennessee participate in an annual program of training of sanitary inspectors which deserves careful study. During the year nuisance abatements increased 24 per cent over the previous year and 78 per cent over the 1925 experience. Much progress has been made in the extension of sanitary sewers since the ratification of a 2 million dollar bond issue in 1928.

Improvement in the milk supply is noted over the 5-year period of supervision under the Standard Milk Ordinance of the U. S. Public Health Service. During 1929, 560 dairies supplied this city of 108,700 population with over 12,000 gallons of milk, 61 per cent of which was pasteurized.

The generalized plan of public health nursing was adopted in 1925 when several separate groups were consolidated under the Bureau of Health. School nursing is one of the important items in the program.

New York Tuberculosis and Health Association—In 1929, 100,000 people were reached directly with personal service or information on health matters by the New York Tuberculosis and Health Association, and at least 1½ million more were helped through services to clinics and sanatoriums, according to the annual report of the Association.

The health education service of the association during the year arranged 585 lectures (reaching 67,000 people), 232 radio talks and 1,369 motion picture showings, with a total attendance of 648,000. The association helped in the city-wide Health Examination Campaign of the County Medical Societies.

Service was given to the tuberculosis, heart and other clinics of the city. The income and cost of living of families bringing their children to baby welfare clinics were studied; surveys were made of the out-patient departments of several large hospitals. The clinic committee of the association, according to the report, is the only public health organization prepared to give these expert services.

The Research Service of the association constantly analyzes the city's sickness and death records, and in 1929 helped in a study of tuberculosis mortality in negro sections of Harlem; cooperated in several studies with the Welfare Council; joined with the Bellevue-Yorkville Health Demonstration in various studies; took part with the

Committee on Neighborhood Health Development in studying suitable locations for the new Department of Health local health centers. A city-wide survey of the prevalence of venereal disease was directed by the Social Hygiene Committee of the Association.

A study of silicosis and tuberculosis among rock-drillers, blasters and excavators was completed, and the association is actively coöperating in formulating preventive measures. Further studies are planned of the hazards affecting many of the 600,000 industrial workers of the city. Many of these hazards eventually lead to tuberculosis, pneumonia, heart disease, lead poisoning, and other occupational diseases. An Industrial Advisory Committee organized in 1929 assists mercantile, industrial and other establishments in studying their industrial health needs and organizing medical departments.

During 1929, thousands of tuberculosis patients were helped to secure sanatorium or clinic care; children with heart disease were placed in suitable jobs, given vocational scholarships or placed in convalescent homes; mothers and babies were cared for in well baby clinics; thousands of industrial workers and others were helped to secure health examinations; over 5,000 workers and children were given dental care at cost in the demonstration clinics of the association.

Pennsylvania Tuberculosis Association—The 1929 year book refers to the society, organized in 1892, as the oldest tuberculosis prevention organization in the world. The second Early Diagnosis campaign was considered one of the most valuable projects of the year. Members of the Outdoor Advertising Association coöperated in posting approximately 700 twenty-four sheet posters in various sections of the state. Railroads placed 10,000 posters in stations, shops and offices; distributed to employees 40,000 pieces of literature and to railroad physicians 1,000 copies of a leaflet regarding the diagnosis of tuberculosis. The State Department of Labor and Industry distributed 10,000 posters, and the same number of copies of the leaflet "Make Sure." The State Manufacturers Association sent 6,500 posters to its members. Insurance companies coöperated in a somewhat similar manner.

The report contains effective charts, and a description of two tuberculosis studies of programs in the state. The Christmas Seal Sale in Pennsylvania in 1928 resulted in the raising of a total of $599,813, with a per capita sale of $6.09 as compared with $5.93 in 1927.

Mount McGregor Sanatorium—The Metropolitan Life Insurance Company maintains a sanatorium at Mount McGregor, N. Y., for the benefit of employees. According to the 15th annual report for 1929, 5,558 patients have been admitted since the opening in November, 1913, of which 2,588 were tuberculous. The average daily census for the year was 260, with a total of 94,900 patient days. Three hundred patients were admitted in 1929, 163 having tuberculosis, all but 2 being pulmonary in type. The percentage of incipient tuberculosis cases on admission was 31, of moderately advanced 45, and far advanced 23, the latter group being somewhat larger than usual. The number of tuberculous patients coming from the field is slightly larger than that from the home office; by far the greatest number of non-tuberculous patients are from the field (79 per cent).

Maryland—The 1929 report of the Bureau of Sanitary Engineering of the Maryland Department of Health covers 16 mimeographed pages of interesting public health engineering material. Attention is called to the typhoid death rate which in Maryland, outside of Bal-

timore City, has fallen to approximately one-ninth of what it was in 1910. The rate for the entire state was 4.2; for Baltimore City alone, 3.2; and for Maryland exclusive of Baltimore, 5.2. To maintain this condition, emphasis is given to the necessity of exercising all sanitary control at maximum efficiency.

Progress is noted in efforts to improve the operation of water purification plants and to secure the extension of sewage disposal systems. Sanitary inspections are made of schools, water sheds, swimming pools, and camps. Appropriations of the 1929 Legislature have made possible improvements in water supply and sewerage systems at state institutions. Extensive studies of stream pollution and industrial wastes are recorded, in addition to an oyster survey. Field inspections during the year totalled 2,068, while 6,486 samples were collected, 208 permits were issued, and 92,680 miles were travelled by members of the staff.

Miami County and Troy City, O.—The 1929 report contains graphs and charts to show the organization of the health department and the downward trend of tuberculosis mortality. The 2 nurses in the county traveled over 17,000 miles and made a total of 3,000 home visits. During 1929 the first deaths in 4 years in the county from diphtheria occurred, there being 5 cases with 2 deaths. In 1929, 649 school children were immunized against diphtheria. During the summer, 456 children in the county and 125 others in Troy city attended preschool conferences. The estimated population of the county is 26,699.

Jamaica—The government of Jamaica, in the 1929 report, calls attention to the increasing interest in public health matters as shown by Parochial Boards and by the general public, and attributes much success to the work of the Bureau of Health Education. A law has recently been passed enabling the government to give financial assistance to public bodies desiring to establish or improve public water supplies. If the plan is approved by the Colonial Office in England, during 1930 the report of the Medical Commission will become effective, providing for the employment of a full-time health officer in each parish; to be selected, paid, and supervised by the Central Board of Health.

The present coöperative health work consists of units for the control of hookworm through sanitation and treatment, health education, school hygiene, school for sanitary inspectors, malaria control, tuberculosis survey and clinic study, and parochial health departments. The work of each of these units is discussed in detail. During the year 1927–1928, there was expended by the Central and Local Boards of Health 83,941 pounds as compared with an expenditure of 45,121 pounds during 1922–1923.

Indiana—The 1929 report of the Division of Infant and Child Hygiene traces the history and activities of the Division since 1922. "When one considers that 77,592 children have had a thorough health examination in Indiana Child Hygiene Conferences and that each child usually has 2 parents, 4 grandparents and many other relatives who are interested, one may safely multiply the number of children by 4 to estimate the number who have received instruction in child care and training, with a child in whom they are interested as an object lesson."

Courses of study have been presented in classes for women, arranged in coöperation with physicians and nurses. Audiences totaling 606,364 have viewed health films and listened to health talks since this work was organized. Over a million pamphlets have been distributed.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH. D.

Physical Defects and Occupation—Summarizing the findings of a study of adult health as revealed in 100,000 records of health examinations which are reported in detail elsewhere. Interesting graphs, skillfully done.

AYRES. Physical Impairments among Males of Different Occupational Classes. Quarterly Bull. (Milbank Memorial Fund), 8, 3: 58 (July), 1930.

Measles Anti-Sera—Convalescent serum proved a better prophylactic agent than adult whole blood. But as whole blood is much more readily available and is of value in attenuating measles, it is the most practical method. Immune goat serum (Tunnicliffe) failed to protect.

BARENBERG, L. H., *et al.* Measles Prophylaxis. J. A. M. A., 95, 1: 4 (July 5), 1930.

Diphtheria After-Effects—The conclusion of this paper, "Diphtheria in childhood appears to be an etiological factor in the development of heart-block in later years," is significant in view of the fact that the former teaching that "diphtheria injures the heart" seemed to be in the process of being successfully exploded.

BUTLER, S., and LEVINE, S. A. Diphtheria as a Cause of Late Heart-Block. Am. Heart J., 5: 592 (June), 1930.

Schoolroom Ventilation and Health—Contribution No. 2 of the New York Commission concludes that differences in schoolroom temperature fail to affect the prevalence of respiratory diseases, thus differing from earlier reports. This final report of the 3-year study will be read with interest in view of the rather heated resolutions once adopted by the A. P. H. A. at its 1925 Annual Meeting.

COLE, R., *et al.* A Study of Ventilation and Respiratory Illness in Syracuse Schools; with an Analysis of Factors Affecting Criteria Used. Am. J. Hyg., 12, 1: 196 (July), 1930.

More Schoolroom Ventilation—The engineer's version of the open window-plenum system controversy, presented by an able committee. Health officials will want to hear the other side of the story, whatever their opinions may be.

DUFFIELD, T. J. The Principles of School Ventilation. Aerologist, 6, 4: 5 (Apr.), 1930.

How Do You Sleep?—Have you had, or have you given advice about sleeping in this or that position? Here is presented a record of the gyrations a normal sleeper goes through in the course of an 8-hour nap. A perfect example of scientific demonstration that demolishes a dozen unscientific theories.

JOHNSON, H. M., *et al.* In What Position Do Healthy People Sleep? J. A. M. A., 94, 26: 2058 (June 28), 1930.

Seasonal Fluctuations of Infections—Carefully collected Danish morbidity statistics furnish the author with excellent material for a broad consideration of the causes of seasonal variations of infectious diseases. A paper with which every epidemiologist ought to be familiar.

MADSEN, T. J. M. The Seasonal Variation of Infectious Diseases. Pub. Health, 43, 10: 309 (July), 1930.

Viewing-with-Alarm—The President of the A. M. A. portrays the dark side of German and English state medical service, couples the Sheppard-

Towner with the Volstead Act and labels them " paternalistic monstrosities " and finally wonders " what proportion of the appalling increase in the number of mental patients in our country at the present time may be traced to too much paternalism applied through the various correlated mental hygiene agencies."

MORGAN, W. G. The Medical Profession and the Paternalistic Tendencies of the Times. J. A. M. A., 94, 26: 2035 (June 28), 1930.

Early Diagnosis of Whooping Cough—The cough plate method for early diagnosis of pertussis is discussed. A potato agar is the medium.

SAUER, L. W., and HAMBRECHT, L. Whooping Cough. J. A. M. A., 95, 4: 263 (July 26), 1930.

Teaching Nutrition—A résumé of the work of Detroit Health Department's Nutrition Division, and a plan for the future. An important project, interestingly summarized.

SIMPSON, D. S. Activities of the Nutrition Division. City Health (Detroit), 16, 4: 3 (May and June), 1930.

Air Conditioning in Hospitals—Four years' experience in the air conditioning of nurseries for premature infants resulted in a lowering of the diarrhea incidence and mortality rates.

YAGLOU, C. P., *et al.* Application of Air Conditioning to Premature Nurseries in Hospitals. Am. Soc. Heat. & Vent. Eng. J., 2, 7: 605 (July), 1930.

Maternal Mortality Causes—Half the women dying in childbirth in Michigan never consulted a physician until just prior to death. Other preventable causes of maternal death are recorded, and the preventive measures are considered.

SMITH, L. R. Maternal Mortality. Public Health (Mich. Dept. of Health), 13, 7: 148 (July), 1930.

Mississippi's Rural Health Work—Health problems are local and require local machinery, promoted and assisted by the state, to insure adequate health protection. These are, in essence, the conclusions from Mississippi's experience in rural health administration.

UNDERWOOD, F. J., and APPLEWHITE, C. C. Whole Time County Health Work in Mississippi. Southern M. J., 23, 6: 505 (June), 1930.

Tuberculosis Case Finding—This report of the sixth year of work of the Chadwick Clinics (Mass.) deals with the problem of the incipient and pretuberculous case after he is found.

WAKEFIELD, P. Children's Tuberculosis Program in Massachusetts. New Eng. J. Med., 203, 4: 168 (July 24), 1930.

Whither Propaganda—The mental hygienist and the cancer prevention propagandist come in for some sound berating. Some of the metaphors are mixed and the style is perhaps unduly vigorous, but health educators will be benefitted by reading this paper.

WECHSLER, I. S. The Legend of the Prevention of Mental Diseases. J. A. M. A., 95, 1: 24 (July 5), 1930.

NEWS FROM THE FIELD

EIGHTH TEXAS SANITARIANS SHORT SCHOOL

UNDER the auspices of the Texas Association of Sanitarians, with the Texas State Department of Health, the City of Amarillo, and the Amarillo Chamber of Commerce, was held the Eighth Sanitarians Short School, August 26–28, with headquarters at the Hotel Herring.

CAPPER AWARD TO DR. BABCOCK

DR. Stephen Moulton Babcock, emeritus professor of agriculture and chemistry at the University of Wisconsin, the inventor in 1890 of the Babcock milk test which revolutionized the dairy industry, is to receive the Capper award of $5,000 and a gold medal at the annual meeting of the American Country Life Association, to be held at the University of Wisconsin from October 7 to 10.—*Science*, Aug. 1, 1930.

RECREATION PARKS

THE National Recreation Association announces, as the result of a study of county parks just published, that the number of counties providing parks has doubled since 1926, 66 counties in 19 states now having reserved a total of 46,564 acres for their people's play and outdoor life. The first county park in America was set aside by Essex County, N. J., in 1895.

Michigan leads with 12 counties making park provision, and California is second with 10.

Preserving for future generations places of unusual scenic and historic interest has been one of the most valuable effects of the movement, according to the study. Without county action, such places would have been utilized for commercial or residential uses. The transformation of polluted streams, valleys, mosquito infested marshes, and dumping grounds into attractive landscaped areas has had a striking and beneficial effect in many counties.—*County Parks*, National Recreation Association, 315 Fourth Ave., New York, N. Y.

BOVINE T. B. DECLINES

A STEADY decline in the prevalence of bovine tuberculosis in the United States has taken place in the last few years as a result of the coöperative campaign to eradicate the infection. The average infection among cattle, for the entire country, is now 1.7 per cent, whereas in 1922 it was 4 per cent.

On May 1, 1930, there were 946 counties officially designated as "modified accredited areas," also 42 towns in Vermont, indicating that these areas are practically free from bovine tuberculosis.

UNIVERSITY OF SOUTHERN CALIFORNIA

THE new Physical Education Building of the University of Southern California will be ready for use during the 1930 fall semester, which opens on September 15, according to Professor William Ralph LaPorte, chairman of the department of physical education. The structure covers a half-block, and includes many unique features.

RESEARCH FELLOWSHIPS

THE National Tuberculosis Association announces the appointment of three research fellows for the academic year 1930–1931. The successful candidates were selected from a large number applying from all parts of the country

The three to whom the awards were made are: Alvin E. Belden, M.D., Lancaster, Pa.; William F. Lawrence, Portsmouth, Va.; and Edna E. Nicholson, A.B., Ann Arbor, Mich.

COFFEE SELDOM FOUND TO VIOLATE FOOD LAW

DOES your breakfast coffee have a smooth rich flavor with just a slight sharpness to give it refreshing zest?

It should have, and most of the 1,400,000,000 pounds imported annually into the United States do have, says the U. S. Department of Agriculture. Inspectors of the Food and Drug Administration seldom find coffee to be in violation of the pure food law. Adulterated coffee is immediately seized to prevent sale to a public which wants and has a right to expect its coffee to be pure.

PINK BOLLWORM STOPPED

SEVERAL pink bollworms stowed away in a small package of cottonseed sent by mail from India met a timely death recently when the package was examined by a United States plant quarantine inspector at Atlanta, Ga. The inspector immediately ordered the contraband package burned, thus preventing a potential invasion by this pest. The pink bollworm is a destructive pest of cotton, regarded by entomologists as at least in the same class with the boll weevil.

DICK PATENT HELD VALID BY FEDERAL COURT

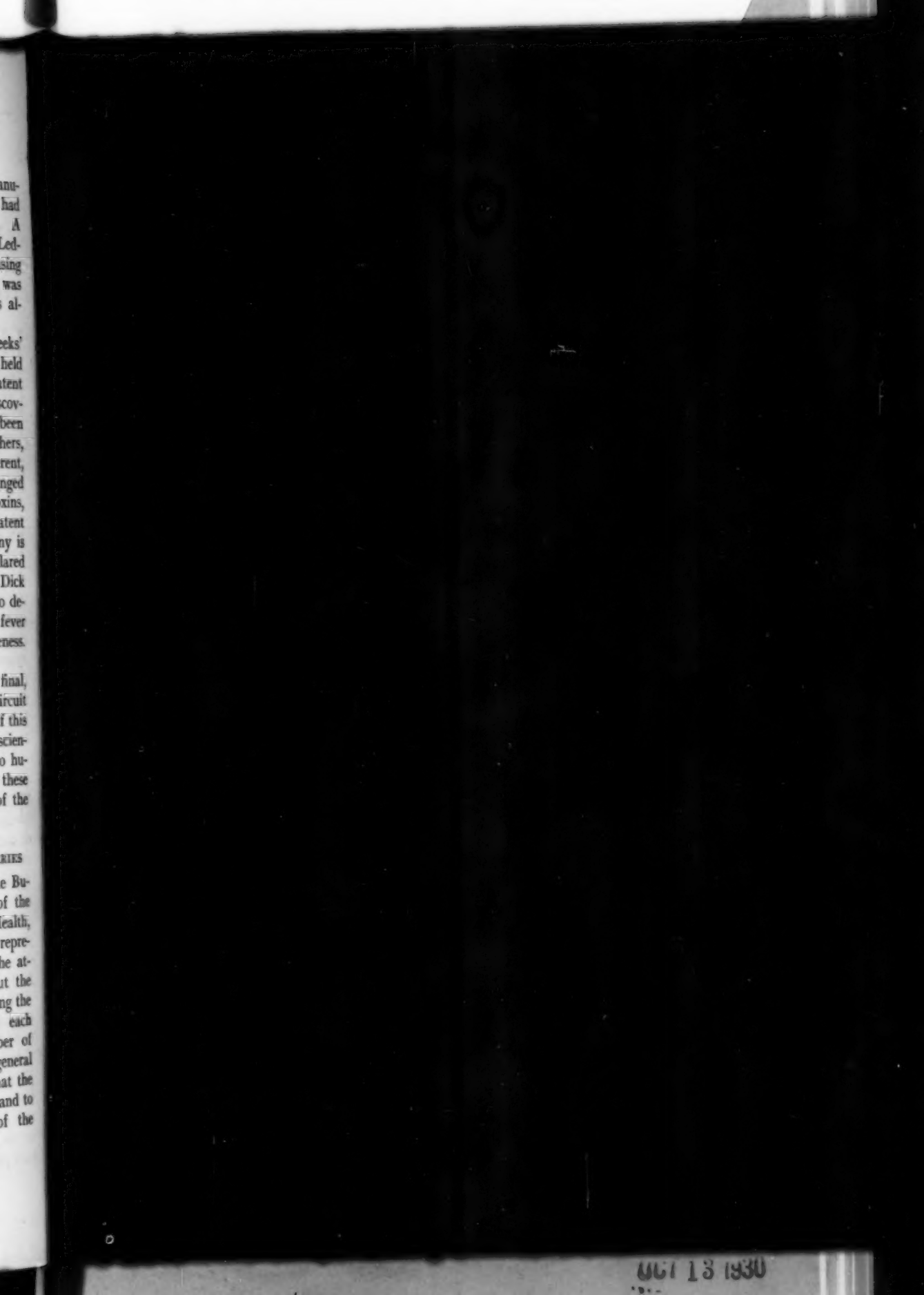
IN a somewhat lengthy and involved opinion handed down on June 9, 1930, in a case brought by George F. Dick and Gladys Henry Dick against the Lederle Antitoxin Laboratories, the U. S. District Court for the Southern District of New York held that the Dick patent on scarlet fever toxin and antitoxin and the processes for their manufacture granted in 1925 is valid and had been infringed by the defendant. A perpetual injunction enjoining the Lederle Antitoxin Laboratories from using the process or selling the product was issued, and an accounting of sales already made was ordered.

In deciding this case after five weeks' presentation of evidence, the Court held that the methods described in the patent are an invention and not a mere discovery, that it is useful, that there had been no anticipation of the process by others, that the Dochez patent was different, that the Dick patent had been infringed by the defendant's toxins and antitoxins, and that the claims in the Dick patent must be sustained. "The testimony is overwhelming and convincing," declared the Court, "that until we got the Dick test the world had no way at all to determine susceptibility to scarlet fever with precise certainty and definiteness. . . ."

This decision is not, of course, final, as an appeal can be taken to the Circuit Court of Appeals. If it is not, or if this decision is sustained, the use of a scientific method of universal benefit to humanity remains in the control of these two individuals until the period of the patent expires.

SANITARY SUPERVISION OF CANNERIES

A. L. SULLIVAN, Chief of the Bureau of Food and Drugs of the Maryland State Department of Health, at the request of a committee of representative canners, has directed the attention of the canners throughout the state to the requirements concerning the industry. He recommends that each canner assign a sufficient number of persons to be responsible for the general sanitation of the plant; to see that the place is cleaned up twice a day; and to supervise the living quarters of the workers.



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